



Service Manual

Nakamichi BX-100 BX-100E

2 Head Cassette Deck



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1. GENERAL

1.1. Voltage Selector

Voltage selector is installed on the rear panel for Other version of the Nakamichi BX-100.
This voltage selector can select either 120 V or 220-240 V at customer's disposal.

1.2. Packing Materials and Owner's Manual

| Part No. | Description | Q'ty |
|----------|---|------|
| 0F03736A | Carton Box BX-100 (Silver) | 1 |
| 0F03750A | Carton Box BX-100E (Silver) | 1 |
| 0F03737A | Carton Box BX-100 (Black) | 1 |
| 0F03751A | Carton Box BX-100E (Black) | 1 |
| 0F03674B | Packing | 2 |
| 0D04311A | Owner's Manual (BX-100 (U.S.A., Canada & Australia) & BX-100E (UK)) | 1 |
| 0D04317A | Owner's Manual (BX-100 (Others) & BX-100E (220V Class 2)) | 1 |

1.3. Serial Number

The BX-100 has two versions, Silver and Black.

In the service manual, serial numbers of these versions are identified as follows:

Silver version: A318xxxxx

Black version: A319xxxxx

However, the actual serial number on the serial number plate of the BX-100 is indicated as A318.9xxxxx.

The serial number begins with A318.901001.

2. MECHANICAL ADJUSTMENTS

2.1. Tape Guide Height Check for Record/Playback Head and Erase Head

With use of an M-300 produced by Information Terminals, tape guide height check for the Record/Playback and Erase Heads shall be made, wherein a small block shall be pushed straight down to the base while in use of the M-300. Refer to Fig. 2.1.

(1) Record/Playback Head Tape Guide Height

- (a) Load the base of the M-300 carefully, then set the cassette deck in Play mode.
- (b) Place the small block of the M-300 on the base.
- (c) Slide the small block against the tape guide of the Record/Playback Head, and check to insure that the block is accepted by the tape guide.
- (d) If not, loosen the screw and insert a shim (either 30 μm (OC80048A), 60 μm (OC80038A), or 100 μm (OC80039A)) to raise the Record/Playback Head, then tighten and apply a quantity of lock tight paint to the screw.

(2) Erase Head Tape Guide Height

- (a) Load the base of the M-300 carefully, then set the cassette deck in Play mode.
- (b) Place the small block of the M-300 on the base.
- (c) Slide the small block against the tape guide of the Erase Head, and check whether the block is accepted by the tape guide.

2.2. Head Base Stroke Check

Refer to Fig. 2.2.

- (1) Load the base of the M-300 carefully, then push the base toward the Record/Playback Head to eliminate the clearance between the reference pin and the base.
- (2) Set the cassette deck in Play mode.
- (3) Place the small block of the M-300 on the base.
- (4) Contact the small block with the Record/Playback Head surface and the Erase Head surface, and check whether the end of the small block is located within the specified tolerance as shown in the figure.

2.3. Record/Playback Azimuth-Alignment and Height Check

Refer to Fig. 2.1.

- (1) Connect a VTVM to the Output Jacks.
- (2) Load a 15 kHz Azimuth Tape (DA09004B), then set the cassette deck in Play mode.
- (3) Turn the Azimuth Alignment Screw until the outputs of both channels become maximum.
- (4) Load a 1 kHz Track Alignment Tape (DA09007B), then set the cassette deck in Play mode.
- (5) Check to insure that the readings of both channels on the VTVM are below -25 dB.
If not, replacement of the Record/Playback Head will be required.
- (6) Apply a quantity of lock tight paint to the Azimuth Alignment Screw.

2.4. Pressure Adjustment of Pressure Roller

Refer to Fig. 2.3.

- (1) In Play mode, measure the torque of the Pressure Roller and check whether the torque is in a range of 320 ± 50 g-cm.
- (2) If torque is out of the range, correct it by changing the installation point of the Pressure Roller Spring.

2.5. Tape Travelling Check

Load the Tape Travelling Cassette (DA09027B), then set the cassette deck in Play mode and check the following:

- (1) After more than 2 seconds, the fluctuation of the tape travelling on the Record/Playback Head is small.
- (2) Tape is in contact with the head sufficiently.
- (3) Tape waving is small on the heads and pressure roller.

2.6. Eject Damper Adjustment

Refer to Fig. 2.4. Load a cassette tape, and with opening the Cassette Case by pressing the Eject button and closing it by hand, adjust the speed of damper movement by the Adjustment Screw.

CCW: Damper moves fast.

CW: Damper moves slowly.

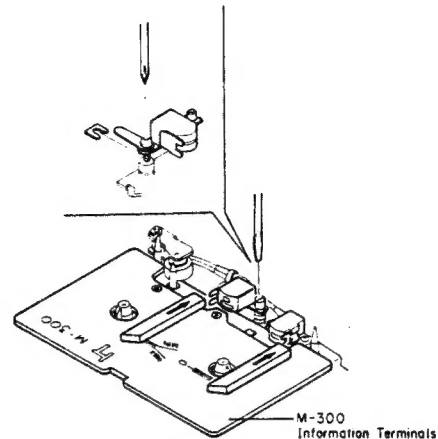


Fig. 2.1

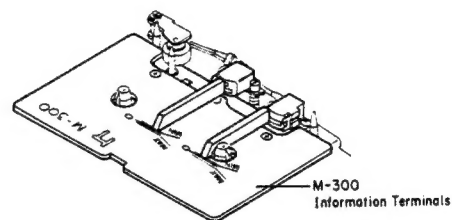


Fig. 2.2

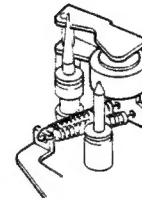


Fig. 2.3

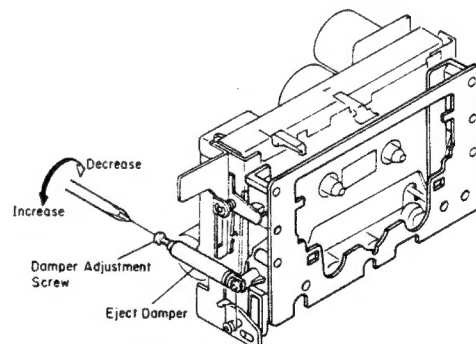


Fig. 2.4

2.7. Reel Motor Speed Adjustment in Play Mode

- (1) To warm-up the cassette deck, load a C-60 cassette tape and set the cassette deck in Play mode.
- (2) After more than four minutes, load a torque meter TW-211 (made by Sony) and set the cassette deck in Play mode.
- (3) Adjust VR601 on the Main P.C.B. Ass'y to obtain exactly 50 g-cm on the torque meter.

2.8. Tape Speed Adjustment

Refer to Fig. 2.5.

- (1) Connect a frequency counter to the Output Jacks.
- (2) Load a 3 kHz Speed and Wow/Flutter Tape (DA09006C) and play it back.
- (3) Adjust the Tape Speed Adjustment Volume incorporated in the Capstan Motor to obtain 3,000 Hz on the frequency counter.
CCW: Motor drives slowly.
CW: Motor drives fast.

2.9. Lubrication

The tape transport is of a lubrication-free type mechanism. When the following parts are replaced, apply the specified lubricant.

- (1) Molykote [®] Grease (X5-6020)
Cam Motor Pulley
Thrust portion on the Capstan Shaft
- (2) FLOIL GB-TS-1
Washer between Reel Hub Ass'y and Back Tension Spring
- (3) Diamond Oil (EP56)
Reel Hub Shaft
- (4) Anderol 456
Capstan Shaft

Note: We suggest that you use the above specified lubricant or equivalent type.

The company dealing in the above lubricant is as follows:

- (a) Molykote [®] Grease (X5-6020)
Dowcorning Co., Ltd., 1-15-1 Nishishinbashi, Minato-ku, Tokyo, Japan
- (b) FLOIL GB-TS-1
Kanto Chemicals Co., Ltd., 2-7 Kanda Sakuma-cho, Chiyoda-ku, Tokyo, Japan
- (c) Diamond Oil (EP-56)
Mitsubishi Oil Co., Ltd., 1-2-4 Toranomom, Minato-ku, Tokyo, Japan
- (d) Anderol 456
Toyo Kokusai Oil Co., Ltd., 3-3-5 Hatchobori, Chuo-ku, Tokyo, Japan

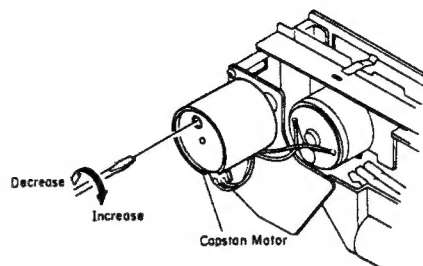


Fig. 2.5

3. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT

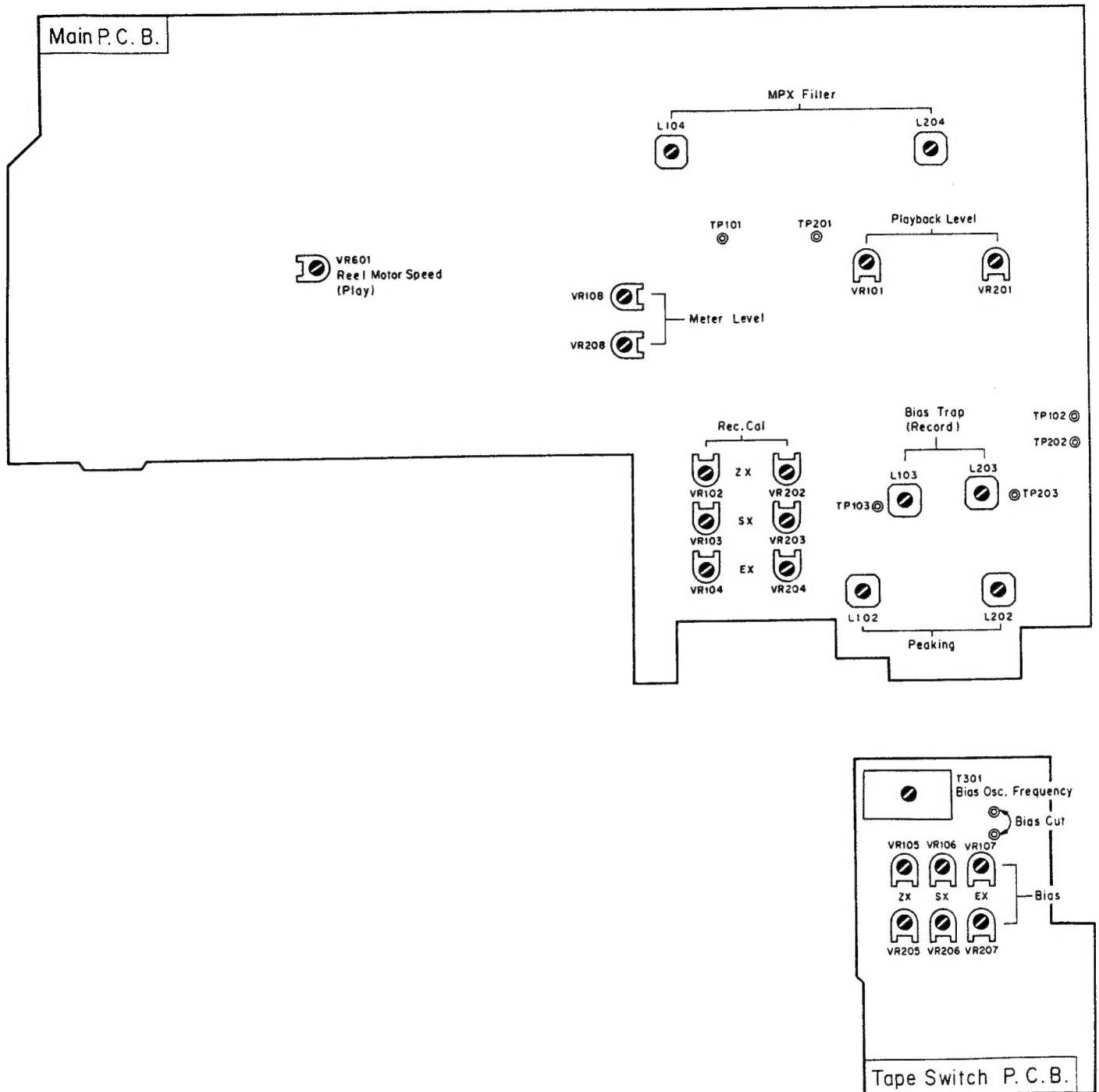


Fig. 3

4. ELECTRICAL ADJUSTMENTS AND MEASUREMENTS

Note: Electrical adjustment should be performed after mechanical adjustment is completed.

4.1. Adjustment and Measurement Instructions

| STEP | ITEM | SIGNAL SOURCE | OUTPUT CONNECTION | MODE | ADJUSTMENT | REMARKS |
|------|---|--|--|---|--|---|
| 1 | Tape Speed Adjustment | 3 kHz Speed and Wow/Flutter Tape (DA09006C) | Frequency Counter to Output Jacks | Playback Eq. SW — 70 μ s | Tape Speed Adjustment Volume | Adjust the volume incorporated in the capstan motor to obtain 3 kHz $\pm 0.5\%$ on the frequency counter. |
| 2 | Meter Level Calibration | 400 Hz to Input Jacks | VTVM to TP101, TP201 on Main P.C.B. | Record, Pause | Main P.C.B. VR108, VR208 | <ol style="list-style-type: none"> 1. Feed in 400 Hz, then adjust the Input Level control to obtain 90 mV -0.8 dB on the VTVM. 2. Adjust VR108 (VR208) so that the 0 dB segment of the level meter starts illuminating. 3. Adjust the Input Level control to obtain 90 mV on the VTVM, then decrease the generator output level by 20 dB. 4. Check to insure that the segment for -20 dB illuminates. |
| 3 | MPX Filter Adjustment | 400 Hz and 19 kHz ± 100 Hz to Input Jacks | VTVM to Output Jacks | Record, Pause | Main P.C.B. L104, L204 | <ol style="list-style-type: none"> 1. Feed in 400 Hz and adjust the Input Level control to obtain 0 dB (500 mV) on the VTVM. 2. Feed in 19 kHz, then adjust L104 (L204) to obtain minimum reading on the VTVM (minimum reading will be less than -30 dB). |
| 4 | Record/Playback Head Azimuth Alignment | 15 kHz Azimuth Tape (DA09004B) | VTVM to Output Jacks | Playback Eq. SW — 70 μ s Dolby NR SW — OFF | Record/Playback Head Azimuth Alignment Screw | Adjust the Record/Playback Head Azimuth Alignment Screw to obtain maximum readings of both channels on the VTVM. |
| 5 | Playback Level Calibration | 400 Hz Level Tape (DA09005B) | VTVM to TP101, TP201 on Main P.C.B. | Same as above | Main P.C.B. VR101, VR201 | Adjust VR101 (VR201) to obtain 90 mV on the VTVM. |
| 6 | Playback Frequency Response Adjustment | 400 Hz Level Tape (DA09005B) 10 kHz PB Frequency Response Tape (DA09003B) 15 kHz PB Frequency Response Tape (DA09002B) 20 kHz PB Frequency Response Tape (DA09001B) | VTVM to Output Jacks | Same as above | Main P.C.B. R110, R210 R195, R295 | <ol style="list-style-type: none"> 1. Load a 400 Hz level tape and play it back. 2. Load 10 kHz, 15 kHz and 20 kHz PB frequency response tapes and adjust the record/playback head azimuth to obtain maximum levels on the VTVM with each tape. 3. Read the maximum levels with each tape and check to insure that the levels against the 400 Hz level tape are within the following ranges. If not, short R110 (R210) or R195 (R295) to obtain satisfactory results. 10 kHz (-20 dB) -2 dB to $+2$ dB 15 kHz (-20 dB) -2 dB to $+3$ dB 20 kHz (-20 dB) -2 dB to $+4$ dB Refer to the "Playback Frequency Response Adjustment" in item 4.2 for the detailed description. 4. Conduct step 4 "Record/Playback Head Azimuth Alignment". |
| 7 | Bias Oscillation Frequency and Erase Current Adjustment | | Frequency Counter to TP102 on Main P.C.B. and VTVM across the additional 0.1 Ω resistor | Record, Pause Tape SW — ZX Eq. SW — 70 μ s Dolby NR SW — OFF | Main P.C.B. T301 R318, R350 | <ol style="list-style-type: none"> 1. Adjust T301 to obtain 105 kHz on the frequency counter. 2. Connect an additional 0.1 Ω resistor in series to the Erase Head, then connect a VTVM across it. 3. Check the erase current by the VTVM. Erase current will be in a range of 145 mA to 185 mA (typically approx. 165 mA). If erase current is not sufficient, increase it by shorting R318 or R350. 4. After completion of the erase current adjustment, re-check the bias oscillation frequency. 5. Remove the additional 0.1 Ω resistor. |
| 8 | Record Amplifier Equalizer Adjustment | 21 kHz (-20 dB) to Input Jacks | VTVM to TP102, TP202 on Main P.C.B. | Same as above | Main P.C.B. L102, L202 | <ol style="list-style-type: none"> 1. Short both Bias Stop test pins with a clip to stop the bias oscillation. 2. Adjust L102 (L202) to obtain peak reading at 21 kHz on the VTVM. 3. Remove the clip from the test pins. |
| 9 | Bias Trap Adjustment (Record Amp.) | Remove input signals | VTVM to TP103, TP203 on Main P.C.B. | Same as above | Main P.C.B. L103, L203 | Adjust L103 (L203) to obtain maximum reading on the VTVM. |

| STEP | ITEM | SIGNAL SOURCE | OUTPUT CONNECTION | MODE | ADJUSTMENT | REMARKS |
|------|--|--|---|--|---|--|
| 10 | Record Level Calibration and Recording Bias Current Adjustment | 400 Hz (0 dB), 400 Hz (-20 dB), 10 kHz (-20 dB) and 17 kHz (-20 dB) to Input Jacks | VTVM to TP102, TP202 on Main P.C.B. and VTVM and Distortion Meter to Output Jacks | Record and Playback Tape SW — ZX/SX/EX Eq. SW — 70 μ s (ZX/SX) 120 μ s (EX) Dolby NR SW — OFF/ON | Main P.C.B. (Level) ZX: VR102, VR202 SX: VR103, VR203 EX: VR104, VR204 (Bias) ZX: VR105, VR205 SX: VR106, VR206 EX: VR107, VR207 | Adjustment should be made in the order of ZX, SX and EX. 1. Set the Dolby NR switch to OFF. 2. Connect a VTVM to output Jacks. 3. Set the BX-100 in Record/Pause mode. 4. Feed in 400 Hz, then adjust the Input Level control to obtain 500 mV (0 dB) on the VTVM. 5. Load a reference ZX tape (DA09037A), reference SX tape (DA09025A) and reference EXII tape (DA09066A). 6. Adjust Record Cal. VR102 (VR202) for ZX, VR103 (VR203) for SX and VR104 (VR204) for EXII to center positions. 7. Connect the VTVM to TP102 (TP202) on the Main P.C.B. Ass'y. Adjust Bias VR105 (VR205) for ZX, VR106 (VR206) for SX and VR107 (VR207) for EXII to obtain the following bias current in Record/Pause mode (the VTVM is connected across a 10-ohm resistor). ZX: approx. 1 mA SX: approx. 0.5 mA EXII: approx. 0.3 mA 8. Connect the VTVM to the Output Jacks. 9. Feed in 400 Hz (-20 dB) and 17 kHz (-20 dB), then record, rewind and play them back. Adjust Bias VR105 (VR205) for ZX, VR106 (VR206) for SX and VR107 (VR207) for EXII to obtain the same playback levels at 400 Hz (-20 dB) and 17 kHz (-20 dB) on the VTVM. 10. Feed in 400 Hz (0 dB), then record, rewind and play it back. Adjust Record Cal. VR102 (VR202) for ZX, VR103 (VR203) for SX and VR104 (VR204) for EXII to obtain 0 dB on the VTVM. 11. Repeat above 9 and 10 two or three times to obtain optimum performance. 12. Set the Dolby NR switch to ON. 13. Feed in 400 Hz (-20 dB), 10 kHz (-20 dB) and 17 kHz (-20 dB), then record, rewind and play them back. Check to insure that the playback levels are within ± 2 dB against the levels in Dolby NR OFF. 14. Check to insure whether the total harmonic distortion is less than 1.0% for ZX and EXII tapes and 1.2% for SX tape. 15. If above is not sufficient, repeat 9 to 14 till satisfactory results are obtained. |
| 11 | Overall Frequency Response Adjustment | 400 Hz (0 dB) and 20 Hz to 17 kHz (-20 dB) to Input Jacks | VTVM to Output Jacks | Record and Playback Tape SW — ZX/SX/EX Eq. SW — 70 μ s (ZX/SX) 120 μ s (EX) Dolby NR SW — OFF | Main P.C.B. L102, L202 | 1. Set the BX-100 in Record/Pause mode. 2. Feed in 400 Hz, then set the Input Level control to obtain 0 dB (500 mV) on the VTVM. 3. Decrease the generator output control by 20 dB. 4. Feed in 20 Hz to 17 kHz (-20 dB) and record, rewind and play them back, then check to insure whether the output levels are within -20 dB \pm 4 dB. 5. If above is not sufficient, adjust L102 (L202) to obtain approx. -20 dB on the VTVM, then conduct step 10 "Record Level Calibration and Recording Bias Current Adjustment". 6. If above is not sufficient, precise re-adjustment of step 6 "Playback Frequency Response", replacement of Record/Playback Head or check on item 2.5 "Tape Travelling Check" will be required. |
| 12 | Crosstalk Measurement | 1 kHz to Input Jacks | 1 kHz Band Pass Filter and VTVM to Output Jacks | Record and Playback Tape SW — ZX Eq. SW — 70 μ s Dolby NR SW — OFF | | 1. Erase the tape with bulk eraser. 2. Adjust the Input Level control to obtain 0 dB on the VTVM, and record the signals on the reference ZX tape (DA09037A). 3. Turn the cassette tape the other way round and play it back. 4. Measure the difference between 2 and 3. |
| 13 | Channel Separation Measurement | 1 kHz to Input Jacks | Same as above | Same as above | | 1. Erase the tape with bulk eraser. 2. Adjust the Input Level control to obtain 0 dB on the VTVM, and set the Balance control to the extreme left (right). 3. Record, rewind and play it back, then measure the R ch (L ch) level. |

| STEP | ITEM | SIGNAL SOURCE | OUTPUT CONNECTION | MODE | ADJUST- MENT | REMARKS |
|------|---------------------------------------|---|--|--|-----------------|--|
| 14 | Erase Measurement | 100 Hz to Input Jacks | 100 Hz Band Pass Filter and VTVM to Output Jacks | Record and Playback Tape SW — ZX Eq. SW — 70 μ s Dolby NR SW — OFF | | <ol style="list-style-type: none"> 1. Erase the tape with bulk eraser. 2. Adjust the Input Level control to obtain 0 dB on the VTVM, and record the signals on the reference ZX tape (DA09037A). 3. Rewind the tape, set the Input Level control to minimum, and then record again. 4. Rewind the tape, play it back, and then measure the difference between 2 and 3. |
| 15 | Signal to Noise Ratio Measurement | 400 Hz to Input Jacks | IHF-A Curve, Filter, VTVM and Distortion Meter to Output Jacks | Record and Playback Tape SW — ZX Eq. SW — 70 μ s Dolby NR SW — ON | | <ol style="list-style-type: none"> 1. Set the Dolby NR switch to ON. 2. Feed in 400 Hz, then record, rewind and play it back. 3. Adjust the Input Level control to obtain 3% total harmonic distortion in Playback mode. 4. Set the Input Level control to minimum then record again. 5. After rewind, play back and check the output level difference between 3 and 4. <p>Note: The filter of IHF-A curve shall be used in the measurements.</p> |
| 16 | Total Harmonic Distortion Measurement | 400 Hz to Input Jacks | VTVM and Distortion Meter to Output Jacks | Record and Playback Tape SW — ZX/SX/EX Eq. SW — 70 μ s (ZX/SX) 120 μ s (EX) Dolby NR SW — OFF | | <ol style="list-style-type: none"> 1. Adjust the Input Level control to obtain 0 dB on the VTVM. 2. Record, rewind and play it back. 3. Read the distortion meter and check to insure that the distortion is as follows: EXII 1.0% or less SX 1.2% or less ZX 1.0% or less |
| 17 | Wow/Flutter Measurement | 3 kHz Speed and Wow/Flutter Tape (DA09006C) | Wow/Flutter Meter to Output Jacks | Playback Eq. SW — 70 μ s | | Play back and read the wow/flutter meter. |

4.2. Playback Frequency Response Adjustment

Figs. 4.1 and 4.2 show the playback amp. circuit for adjustment and the playback equalization curve.

This adjustment will be required if playback level is not sufficient during playing back a 20 kHz PB frequency response tape.

The peaking portion of the equalization curve compensates the gap loss of the playback head. Peaking level is varied by the short circuit of R110 (R210) or R195 (R295).

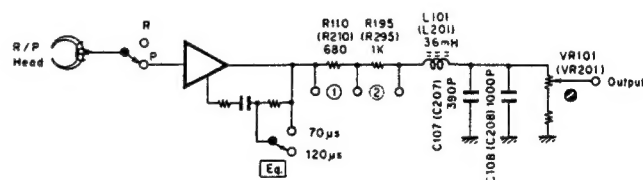


Fig. 4.1

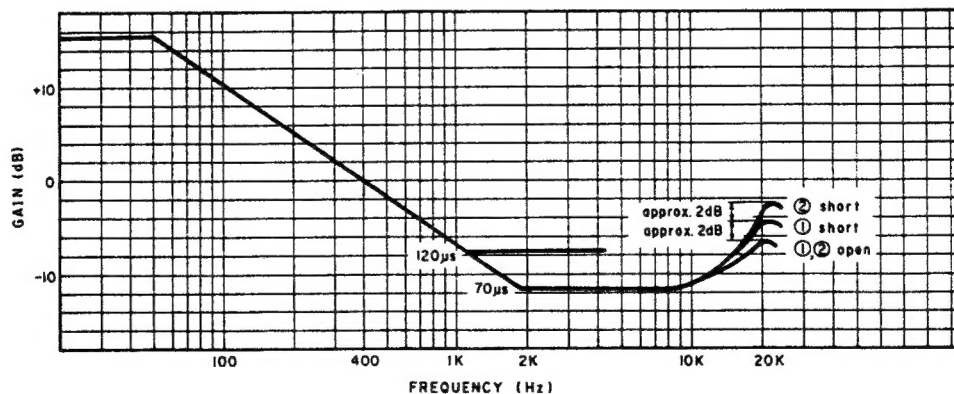


Fig. 4.2

4.3. Dolby NR Circuit Check

Dolby NR circuit incorporates a Dolby NR IC ($\mu A7300PC$) which has no adjustment point.

Perform the following checks and make sure that the IC operates accurately i.e., frequency response through IC is accurate.

Signal Source: 1.4 kHz to Input Jacks

Output Connection: VTVM to TP101 (TP201) and negative side of C141 (C241) on the Main P.C.B.

Mode: Record/Pause

- (1) Connect a VTVM to TP101 (TP201) on the Main P.C.B. Ass'y. Feed in 1.4 kHz and adjust the Input level control so that the VTVM may read 90 mV (0 dB) at each test point. Level meter will indicate 0 dB.
- (2) Remove the VTVM from TP101 (TP201) and reconnect it to the negative side of C141 (C241).
- (3) Decrease the input level (0 dB) by 20 dB or 30 dB. Check to insure that the level at negative side of C141 (C241) corresponds to the following with the Dolby NR switch ON and OFF.

| Input Level at TP101 (TP201) | Level at negative side of C141 (C241) | |
|---------------------------------|---------------------------------------|----------------------|
| | Dolby NR OFF | Dolby NR B-Type |
| 9 mV | 0 dB | +3.2 dB \pm 1.5 dB |
| 2.85 mV | 0 dB | +8.2 dB \pm 1.5 dB |

5. MECHANISM ASS'Y AND PARTS LIST

5.1. Synthesis

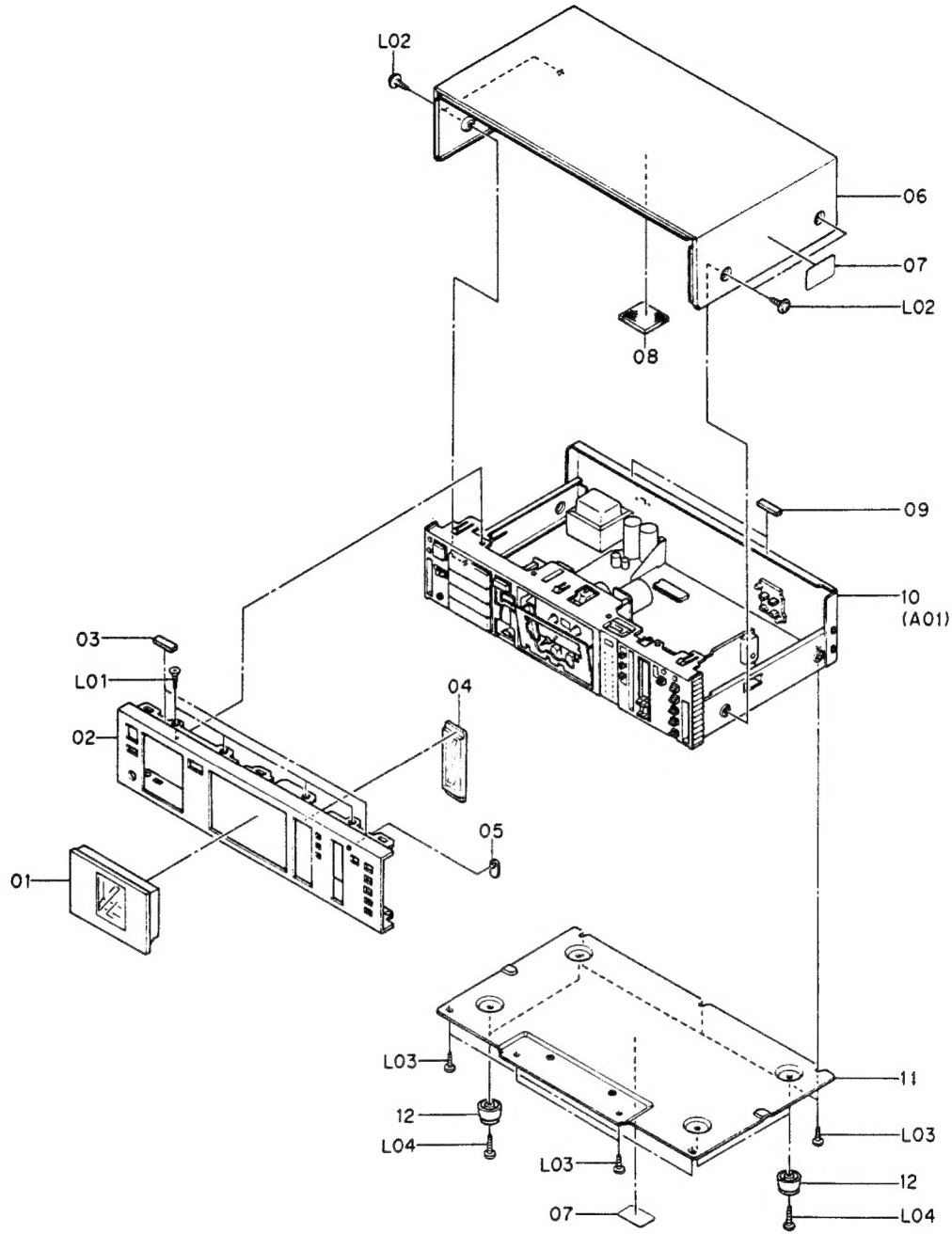


Fig. 5.1

| Schematic Ref. No. | Part No. | Description | Q'ty | Schematic Ref. No. | Part No. | Description | Q'ty |
|--------------------|----------|--|------|--------------------|----------|---|------|
| | | Synthesis Serial No.: A31801001 - (Silver) | | | | Synthesis Serial No.: A31901001 - (Black) | |
| 01 | HA04494A | Cassette Case Cover Ass'y | 1 | 01 | HA04495A | Cassette Case Cover Ass'y | 1 |
| 02 | OH04263A | Front Panel BX-100 | 1 | 02 | OH04264A | Front Panel BX-100 | 1 |
| | OH04358A | Front Panel BX-100E | 1 | | OH04359A | Front Panel BX-100E | 1 |
| 03 | OJ04628A | Top Cover Cushion (Front) | 2 | 03 | OJ04628A | Top Cover Cushion (Front) | 2 |
| 04 | OH04306A | Meter Cover | 1 | 04 | OH04306A | Meter Cover | 1 |
| 05 | OH04240A | Control Lens | 1 | 05 | OH04240A | Control Lens | 1 |
| 06 | OH04155B | Top Cover | 1 | 06 | OH04156B | Top Cover | 1 |
| 07 | OM04377A | Caution Label | 1 | 07 | OM04377A | Caution Label | 1 |
| 08 | OJ04630A | Top Cover Rubber | 1 | 08 | OJ04630A | Top Cover Rubber | 1 |
| 09 | OJ04629A | Top Cover Cushion (Rear) | 1 | 09 | OJ04629A | Top Cover Cushion (Rear) | 1 |
| 10 | — | Synthesis Mechanism Ass'y | 1 | 10 | — | Synthesis Mechanism Ass'y | 1 |
| 11 | OJ04762A | Bottom Cover | 1 | 11 | OJ04762A | Bottom Cover | 1 |
| 12 | OJ03564A | Leg T-H | 4 | 12 | OJ03564A | Leg T-H | 4 |
| L01 | OE03054A | BT 3x8 @ Countersunk | 4 | L01 | OE03054A | BT 3x8 @ Countersunk | 4 |
| L02 | OE03033A | BT 4x8 @ Pan Washer-Faced | 4 | L02 | OE03033A | BT 4x8 @ Pan Washer-Faced | 4 |
| L03 | OE00868A | BT 3x8 @ Binding | 7 | L03 | OE00868A | BT 3x8 @ Binding | 7 |
| L04 | OE00865A | BT 3x10 @ Binding | 4 | L04 | OE00865A | BT 3x10 @ Binding | 4 |

5.2. Synthesis Mechanism Ass'y (A01)

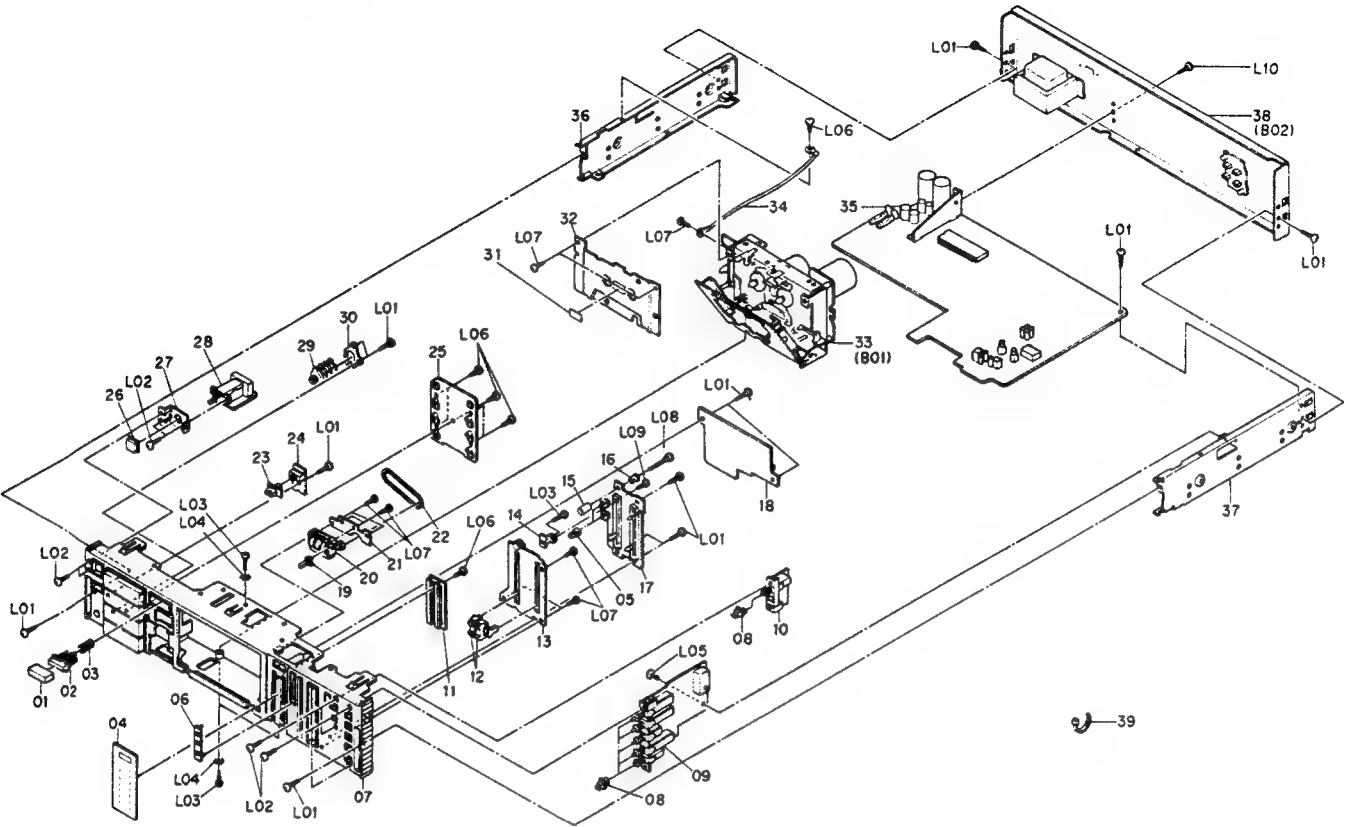


Fig. 5.2

| Schematic Ref. No. | Part No. | Description | Q'ty | Schematic Ref. No. | Part No. | Description | Q'ty |
|--------------------|----------|---|------|--------------------|----------|---|------|
| A01 | | Synthesis Mechanism Ass'y Serial No.: A31801001 - (Silver) | 1 | A01 | | Synthesis Mechanism Ass'y Serial No.: A31901001 - (Black) | 1 |
| 01 | OH04270A | Eject Button | 1 | 01 | OH04269A | Eject Button | 1 |
| 02 | OJ04766A | Button Joint | 1 | 02 | OJ04766A | Button Joint | 1 |
| 03 | OJ04765A | Spring | 1 | 03 | OJ04765A | Spring | 1 |
| 04 | OH04277A | Meter Scale | 1 | 04 | OH04277A | Meter Scale | 1 |
| 05 | OH04272A | Memory Switch Knob | 2 | 05 | OH04271A | Memory Switch Knob | 2 |
| 06 | OH04276A | Counter Escutcheon | 1 | 06 | OH04275A | Counter Escutcheon | 1 |
| 07 | HA04522A | Front Chassis Sub Ass'y | 1 | 07 | HA04523A | Front Chassis Sub Ass'y | 1 |
| 08 | OH04288A | Push Switch Button | 5 | 08 | OH04248A | Push Switch Button | 5 |
| 09 | BA05073A | Tape Switch P.C.B. Ass'y | 1 | 09 | BA05073A | Tape Switch P.C.B. Ass'y | 1 |
| 10 | BA05076A | Dolby NR Switch P.C.B. Ass'y | 1 | 10 | BA05076A | Dolby NR Switch P.C.B. Ass'y | 1 |
| 11 | BA05089A | Indicator P.C.B. Ass'y | 1 | 11 | BA05089A | Indicator P.C.B. Ass'y | 1 |
| 12 | OH04289A | Volume Knob | 2 | 12 | OH04247A | Volume Knob | 2 |
| 13 | OH04283A | Volume Plate | 1 | 13 | OH04283A | Volume Plate | 1 |
| 14 | OJ04767A | Memory Switch Holder | 1 | 14 | OJ04767A | Memory Switch Holder | 1 |
| 15 | OJ04703A | P.C.B. Spacer A | 1 | 15 | OJ04703A | P.C.B. Spacer A | 1 |
| 16 | OJ04704A | P.C.B. Spacer B | 1 | 16 | OJ04704A | P.C.B. Spacer B | 1 |
| 17 | BA05075A | Volume P.C.B. Ass'y | 1 | 17 | BA05075A | Volume P.C.B. Ass'y | 1 |
| 18 | BA05074A | Indicator P.C.B. Ass'y | 1 | 18 | BA05074A | Indicator P.C.B. Ass'y | 1 |
| 19 | OH04274A | Counter Knob | 1 | 19 | OH04273A | Counter Knob | 1 |
| 20 | OC08602A | Tape Counter | 1 | 20 | OC08602A | Tape Counter | 1 |
| 21 | OJ04764A | Counter Holder | 1 | 21 | OJ04764A | Counter Holder | 1 |
| 22 | OC08604A | Counter Belt | 1 | 22 | OC08604A | Counter Belt | 1 |
| 23 | OH04309A | Slide Switch Knob | 1 | 23 | OH04242A | Slide Switch Knob | 1 |
| 24 | BA05078A | Timer Switch P.C.B. Ass'y | 1 | 24 | BA05078A | Timer Switch P.C.B. Ass'y | 1 |
| 25 | BA05077A | Control Switch P.C.B. Ass'y | 1 | 25 | BA05077A | Control Switch P.C.B. Ass'y | 1 |
| 26 | OH04290A | Power Switch Button | 1 | 26 | OH04243A | Power Switch Button | 1 |
| 27 | OJ04763A | Power Switch Holder | 1 | 27 | OJ04763A | Power Switch Holder | 1 |
| 28 | BA04823A | Power Switch P.C.B. Ass'y (BX-100 (U.S.A. & Canada)) | 1 | 28 | BA04823A | Power Switch P.C.B. Ass'y (BX-100 (U.S.A. & Canada)) | 1 |
| | BA04824A | Power Switch P.C.B. Ass'y (BX-100 (Australia & Others) & BX-100E) | 1 | | BA04824A | Power Switch P.C.B. Ass'y (BX-100 (Australia & Others) & BX-100E) | 1 |
| 29 | OB08511A | Headphone Jack | 1 | 29 | OB08511A | Headphone Jack | 1 |
| 30 | OJ04611A | Headphone Plate | 1 | 30 | OJ04611A | Headphone Plate | 1 |
| 31 | OM04196A | Cassette Label | 1 | 31 | OM04196A | Cassette Label | 1 |
| 32 | OH04154B | Cover Plate | 1 | 32 | OH04154B | Cover Plate | 1 |
| 33 | CA08498A | Mechanism Ass'y | 1 | 33 | CA08498A | Mechanism Ass'y | 1 |
| 34 | BA05131A | Earth Wire | 1 | 34 | BA05131A | Earth Wire | 1 |
| 35 | BA05063A | Main P.C.B. Ass'y | 1 | 35 | BA05063A | Main P.C.B. Ass'y | 1 |
| 36 | OJ04603E | Side Chassis (L) | 1 | 36 | OJ04603E | Side Chassis (L) | 1 |
| 37 | OJ04773A | Side Chassis (R) | 1 | 37 | OJ04773A | Side Chassis (R) | 1 |
| 38 | HA04499A | Rear Panel Ass'y BX-100 (U.S.A. & Canada) | 1 | 38 | HA04505A | Rear Panel Ass'y BX-100 (U.S.A. & Canada) | 1 |
| | HA04502A | Rear Panel Ass'y BX-100 (Australia) | 1 | | HA04508A | Rear Panel Ass'y BX-100 (Australia) | 1 |
| | HA04501A | Rear Panel Ass'y BX-100 (Others) | 1 | | HA04507A | Rear Panel Ass'y BX-100 (Others) | 1 |
| | HA04498A | Rear Panel Ass'y BX-100E (UK) | 1 | | HA04504A | Rear Panel Ass'y BX-100E (UK) | 1 |
| | HA04503A | Rear Panel Ass'y BX-100E (220V Class 2) | 1 | | HA04509A | Rear Panel Ass'y BX-100E (220V Class 2) | 1 |
| 39 | OB08515A | Insu-lock | 1 | 39 | OB08515A | Insu-lock | 1 |
| — | OB82116B | Ribbon Cable 2P (160mm) | 2 | — | OB82116B | Ribbon Cable 2P (160mm) | 2 |
| — | OB82117B | Ribbon Cable 2P (220mm) | 3 | — | OB82117B | Ribbon Cable 2P (220mm) | 3 |
| — | OB82118B | Ribbon Cable 2P (300mm) | 2 | — | OB82118B | Ribbon Cable 2P (300mm) | 2 |
| — | OB82121B | Ribbon Cable 3P (330mm) | 1 | — | OB82121B | Ribbon Cable 3P (330mm) | 1 |
| — | OB82122B | Ribbon Cable 3P (360mm) | 1 | — | OB82122B | Ribbon Cable 3P (360mm) | 1 |
| — | OB82124B | Ribbon Cable 3P (410mm) | 1 | — | OB82124B | Ribbon Cable 3P (410mm) | 1 |
| — | OB82125B | Ribbon Cable 4P (300mm) | 2 | — | OB82125B | Ribbon Cable 4P (300mm) | 2 |
| — | OB82126B | Ribbon Cable 4P (360mm) | 1 | — | OB82126B | Ribbon Cable 4P (360mm) | 1 |
| — | OB82129B | Ribbon Cable 6P (280mm) | 1 | — | OB82129B | Ribbon Cable 6P (280mm) | 1 |
| — | OB82220A | Ribbon Cable 3P (160mm) | 1 | — | OB82220A | Ribbon Cable 3P (160mm) | 1 |
| — | OB82219A | P-D Connector Ass'y | 1 | — | OB82219A | P-D Connector Ass'y | 1 |
| L01 | OE00868A | BT 3x8 @ Binding | 15 | L01 | OE00868A | BT 3x8 @ Binding | 15 |
| L02 | OE00766A | M3x8 @ Binding | 6 | L02 | OE00766A | M3x8 @ Binding | 6 |
| L03 | OE03074A | BT 2.6x8 @ Binding | 3 | L03 | OE03074A | BT 2.6x8 @ Binding | 3 |
| L04 | OE00233A | Washer 2.6mm Toothed Lock | 2 | L04 | OE00233A | Washer 2.6mm Toothed Lock | 2 |
| L05 | OB08583A | Plastic Rivet | 1 | L05 | OB08583A | Plastic Rivet | 1 |
| L06 | OE00857A | BT 3x6 @ Binding | 7 | L06 | OE00857A | BT 3x6 @ Binding | 7 |
| L07 | OE00859A | BT 2.6x6 @ Binding | 10 | L07 | OE00859A | BT 2.6x6 @ Binding | 10 |
| L08 | OE00835A | BT 3x25 @ Pan | 1 | L08 | OE00835A | BT 3x25 @ Pan | 1 |
| L09 | OE03070A | M2.6x6 @ Binding | 1 | L09 | OE03070A | M2.6x6 @ Binding | 1 |
| L10 | OE03028A | BT 3x8 @ Binding (Nickel) | 1 | L10 | OE00921A | BT 3x8 @ Binding (Black Chromate) | 1 |

5.3. Mechanism Ass'y (B01)

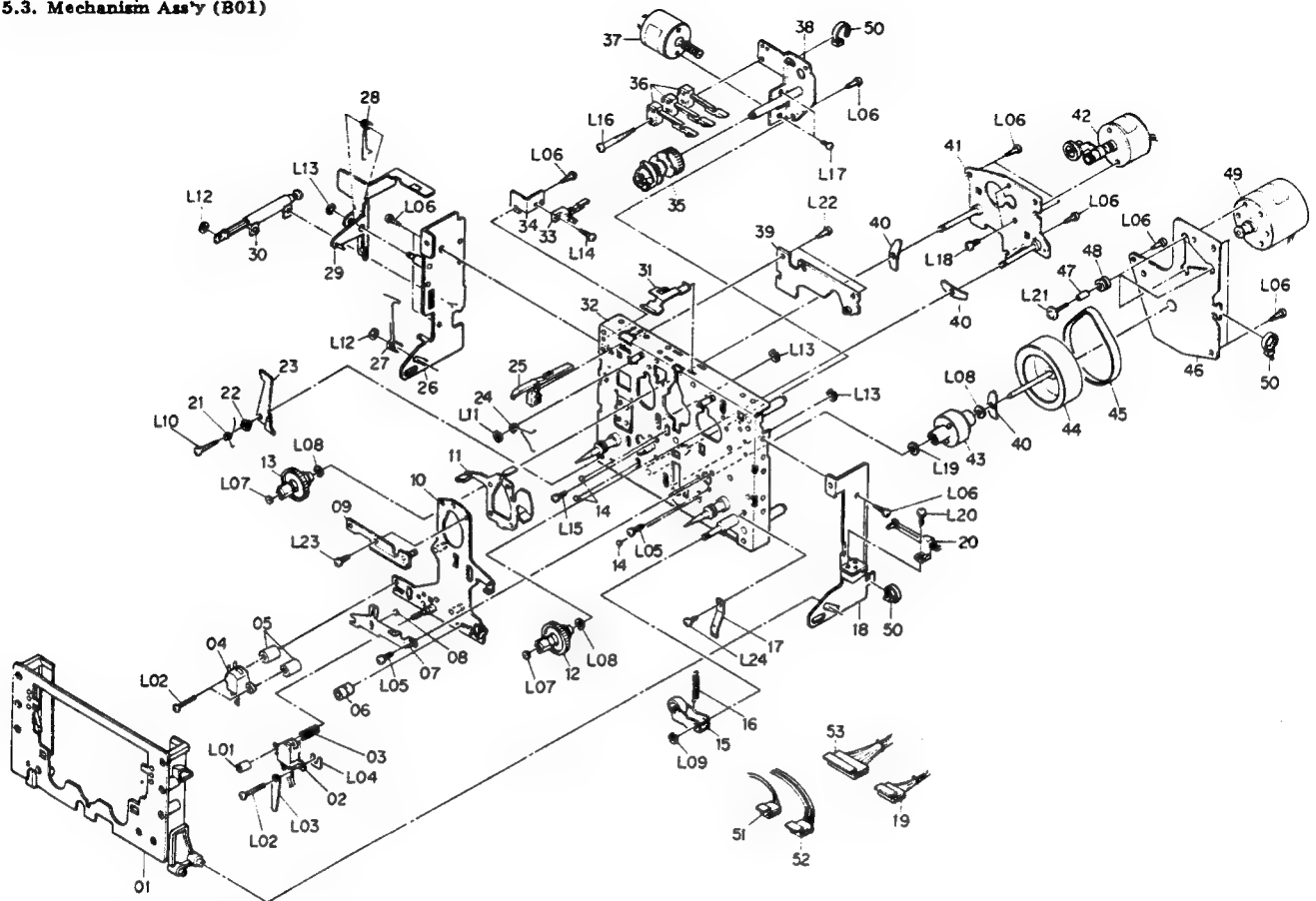


Fig. 5.3

5.4. Rear Panel Ass'y (B02)

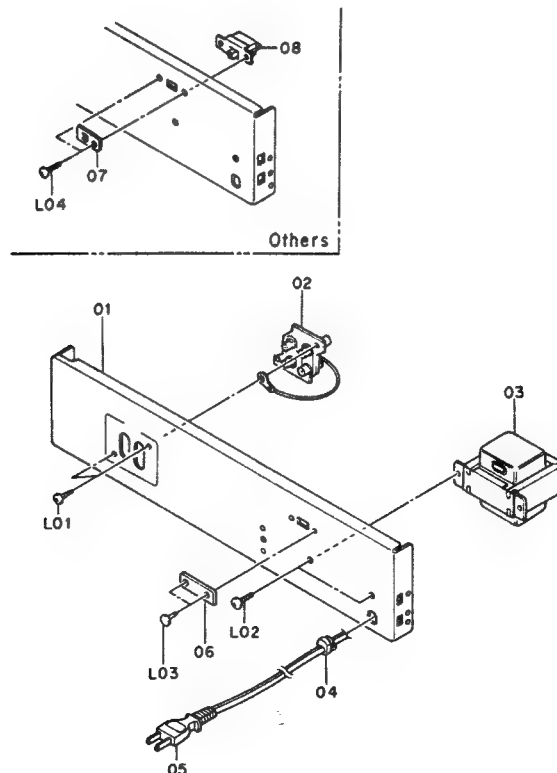


Fig. 5.4

| Schematic Ref. No. | Part No. | Description | Qty | Schematic Ref. No. | Part No. | Description | Qty |
|--------------------|----------|--|-----|--------------------|----------|---|-----|
| B01 | CA08498A | Mechanism Ass'y Serial No.: A318.901001 - | 1 | B02 | HA04499A | Rear Panel Ass'y BX-100 (U.S.A. & Canada) | 1 |
| 01 | CA80001A | Cassette Case Ass'y | 1 | | HA04501A | Rear Panel Ass'y BX-100 (Others) | 1 |
| 02 | OG01371A | Record/Playback Head RP-2G | 1 | | HA04502A | Rear Panel Ass'y BX-100 (Australia) | 1 |
| 03 | OC80001A | Azimuth Adjust Spring | 1 | | HA04498A | Rear Panel Ass'y BX-100E (UK) | 1 |
| 04 | OG01365A | Erase Head E-2D | 1 | | HA04503A | Rear Panel Ass'y BX-100E (220V Class 2) | 1 |
| 05 | OC80044A | Erase Head Collar | 2 | | | Serial No.: A31801001 - (Silver) | |
| 06 | OC80045A | Record/Playback Head Collar | 1 | 01 | OH04298A | Rear Panel BX-100 | 1 |
| 07 | OC80003A | Head Base Hold Plate | 1 | | OH04362A | Rear Panel BX-100E | 1 |
| 08 | OC80004A | Steel Ball 30 | 1 | 02 | OB81001A | 4P Pin Jack | 1 |
| 09 | OC80005A | Reinforce Plate | 1 | 03 | OB50017A | Power Transformer (BX-100 (U.S.A. & Canada)) | 1 |
| 10 | OC80006A | Head Base | 1 | | OB50009A | Power Transformer (BX-100 (Australia) & BX-100E) | 1 |
| 11 | CA80002A | Brake Ass'y | 1 | | OB50010B | Power Transformer (BX-100 (Others)) | 1 |
| 12 | CA80003B | Take-up Reel Hub Ass'y | 1 | 04 | OB08037U | Cord Bushing 4P-4 (BX-100) | 1 |
| 13 | CA80004B | Supply Reel Hub Ass'y | 1 | | OB08351A | Cord Bushing 4K-4 (BX-100E (UK)) | 1 |
| 14 | OC80007A | Steel Ball 20 | 3 | 05 | OB08533A | Power Cord (BX-100 (U.S.A., Canada & Others)) | 1 |
| 15 | CA80005A | Pressure Roller Ass'y | 1 | | OB08348A | Power Cord (BX-100E (UK)) | 1 |
| 16 | OC80008A | Pressure Roller Spring | 1 | | OB08093U | Power Cord (BX-100E (220V Class 2)) | 1 |
| 17 | OC80009A | Cassette Case Spring | 1 | 06 | OB05241A | Power Cord (BX-100 (Australia)) | 1 |
| 18 | OC80010B | Cassette Case Holder R | 1 | | OJ04622B | Switch Cover Gray (BX-100 (U.S.A., Canada & Australia) & (BX-100E)) | 1 |
| 19 | OC80043A | 5P-H Connector | 1 | 07 | OM04407A | Voltage Selector Lock Plate Gray (BX-100 (Others)) | 1 |
| 20 | OC80012A | Eject Sensor | 1 | 08 | OB07092U | Voltage Selector (BX-100 (Others)) | 1 |
| 21 | OC80013A | Lock Lever Spring | 1 | L01 | OE03028A | BT 3x8 @ Binding (Nickel) | 2 |
| 22 | OC80014A | Lock Lever Collar | 1 | L02 | OE03024A | BT 4x8 @ Binding | 2 |
| 23 | OC80015B | Lock Lever | 1 | L03 | OB08583A | Plastic Rivet | 2 |
| 24 | OC80016A | Brake Spring | 1 | L04 | OE03031A | M3x8 @ Binding (Nickel) | 2 |
| 25 | OC80017A | Record Protector Lever | 1 | B02 | HA04505A | Rear Panel Ass'y BX-100 (U.S.A. & Canada) | 1 |
| 26 | OC80018A | Cassette Case Holder L | 1 | | HA04507A | Rear Panel Ass'y BX-100 (Others) | 1 |
| 27 | OC80019B | Eject Spring | 1 | | HA04508A | Rear Panel Ass'y BX-100 (Australia) | 1 |
| 28 | OC80020A | Eject Lever Spring | 1 | | HA04504A | Rear Panel Ass'y BX-100E (UK)) | 1 |
| 29 | OC80021A | Eject Lever | 1 | | HA04509A | Rear Panel Ass'y BX-100E (220V Class 2) | 1 |
| 30 | CA80006A | Pneumatic Damper Ass'y | 1 | | | Serial No.: A31901001 - (Black) | |
| 31 | OC80022B | Cassette Hold Spring | 1 | 01 | OH04299A | Rear Panel BX-100 | 1 |
| 32 | OC80023A | Mechanism Chassis | 1 | | HA04363A | Rear Panel BX-100E | 1 |
| 33 | OC80024A | Record Protector | 1 | 02 | OB81001A | 4P Pin Jack | 1 |
| 34 | OC80025A | Record Protector Holder | 1 | 03 | OB50017A | Power Transformer (BX-100 (U.S.A. & Canada)) | 1 |
| 35 | OC80026A | Cam | 1 | | OB50009A | Power Transformer (BX-100 (Australia) & BX-100E) | 1 |
| 36 | OC80027A | Mode Switch | 3 | | OB50010B | Power Transformer (BX-100 (Others)) | 1 |
| 37 | CA80007A | Control Motor Ass'y | 1 | 04 | OB08037U | Cord Bushing 4P-4 (BX-100 & BX-100E (220V Class)) | 1 |
| 38 | OC80028A | Control Motor Holder | 1 | | OB08351A | Cord Bushing 4K-4 (BX-100E (UK)) | 1 |
| 39 | CA80011A | Shut-off P.C.B. Ass'y | 1 | 05 | OB08533A | Power Cord (BX-100 (U.S.A., Canada & Others)) | 1 |
| 40 | OC80029A | Back Tension Spring | 3 | | OB08348A | Power Cord (BX-100E (UK)) | 1 |
| 41 | OC80030A | Reel Motor Holder | 1 | | OB08093U | Power Cord (BX-100E (220V Class 2)) | 1 |
| 42 | CA80008B | Reel Motor Ass'y | 1 | 06 | OB05241A | Power Cord (BX-100 (Australia)) | 1 |
| 43 | OC80031A | Capstan Flange | 1 | | OJ04601B | Switch Cover Black (BX-100 (U.S.A., Canada & Australia) & BX-100E) | 1 |
| 44 | OC80033A | Flywheel | 1 | 07 | OJ03948A | Voltage Selector Lock Plate Black (BX-100 (Others)) | 1 |
| 45 | OC80034A | Capstan Belt | 1 | L01 | OE00921A | BT 3x8 @ Binding (Black Chromate) | 2 |
| 46 | CA80009A | Flywheel Holder Ass'y | 1 | L02 | OE00915A | BT 4x8 @ Binding (Black Chromate) | 2 |
| 47 | OC80035A | Sleeve | 3 | L03 | OB08583A | Plastic Rivet | 2 |
| 48 | OC80036A | Floating Rubber | 3 | L04 | OE00818A | M3x8 @ Binding (Black Chromate) | 2 |
| 49 | CA80010A | Capstan Motor Ass'y | 1 | | | | |
| 50 | OC80037A | Insu-Lock | 3 | | | | |
| 51 | OC80040A | 2P-H Connector | 1 | | | | |
| 52 | OC80041A | 4P-H Connector | 1 | | | | |
| 53 | OC80042A | 9P-H Connector | 1 | | | | |
| L01 | OC80046A | Azimuth Adjust Screw | 1 | | | | |
| L02 | OE03038A | M2x12 @ Binding | 3 | | | | |
| L03 | OE03053A | Wire Holder | 1 | | | | |
| L04 | OC80048A | Shim 0.03T | (1) | | | | |
| | OC80038A | Shim 0.06T | (1) | | | | |
| | OC80039A | Shim 0.1T | (1) | | | | |
| L05 | OE03046A | M2.6x6 @ Pan (2A) | 3 | | | | |
| L06 | OE03042A | FT M2.5x5 @ Pan | 12 | | | | |
| L07 | OE03049A | Washer 1.8mm FT | 2 | | | | |
| L08 | OE03050A | Washer 3.1mm FT | 3 | | | | |
| L09 | OE00222A | E-Ring 2mm | 1 | | | | |
| L10 | OE03043A | FT M2.5x10 @ Pan | 1 | | | | |
| L11 | OE00698A | E-Ring 2.5mm | 1 | | | | |
| L12 | OE03052A | Stopper Ring 2.4mm | 2 | | | | |
| L13 | OE00181A | E-Ring 3mm | 3 | | | | |
| L14 | OE03048A | FT M2.6x6 @ Pan | 1 | | | | |
| L15 | OE03036A | M2x4 @ Pan (2A) | 1 | | | | |
| L16 | OE03044A | FT M2.5x20 @ Pan | 1 | | | | |
| L17 | OE00691A | M2x3 @ Pan | 2 | | | | |
| L18 | OE03045A | M2.6x3 @ Binding | 2 | | | | |
| L19 | OE03051A | Capstan Washer | 1 | | | | |
| L20 | OE03037A | M2x5 @ Pan (2A) | 1 | | | | |
| L21 | OE03047A | M2.6x9 @ Pan | 3 | | | | |
| L22 | OE03041A | FT M2.5x4 @ Pan | 2 | | | | |
| L23 | OE03040A | FT M2.5x3.5 @ Pan | 1 | | | | |
| L24 | OE03035A | M2x3.2 @ Truss | 1 | | | | |

6. MOUNTING DIAGRAMS AND PARTS LIST

- Notes: 1. Mounting diagram shows a dip side view of the printed circuit board.
 2. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.
 3. Following transistors are interchangeable with each other.
 a. 2SA733, 2SA608SP, 2SA1048, 2SA1175
 b. 2SC945, 2SC536SP, 2SC2458, 2SC2785
 4. Abbreviation for part name:
 TR — Transistor, SiD — Silicon Diode, GD — Germanium Diode, ZD — Zener Diode
 RK — Carbon Resistor, RM — Metal Film Resistor, RF — Fail Safe Type Resistor, RC — Cement Resistor,
 RW — Wire Wound Resistor
 CE — Electrolytic Capacitor, CM — Mylar Capacitor, CC — Ceramic Capacitor, CP — PP Capacitor,
 CT — Tantalum Capacitor, CM — Film Capacitor, C — Mica Capacitor

6.1. Power Switch P.C.B. Ass'y

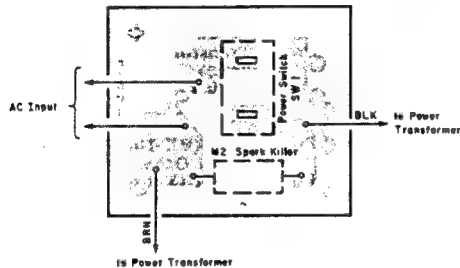


Fig. 6.1

6.2. Shut-off P.C.B. Ass'y

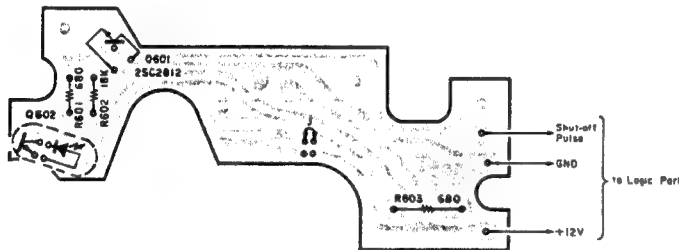


Fig. 6.2

6.3. Control Switch P.C.B. Ass'y

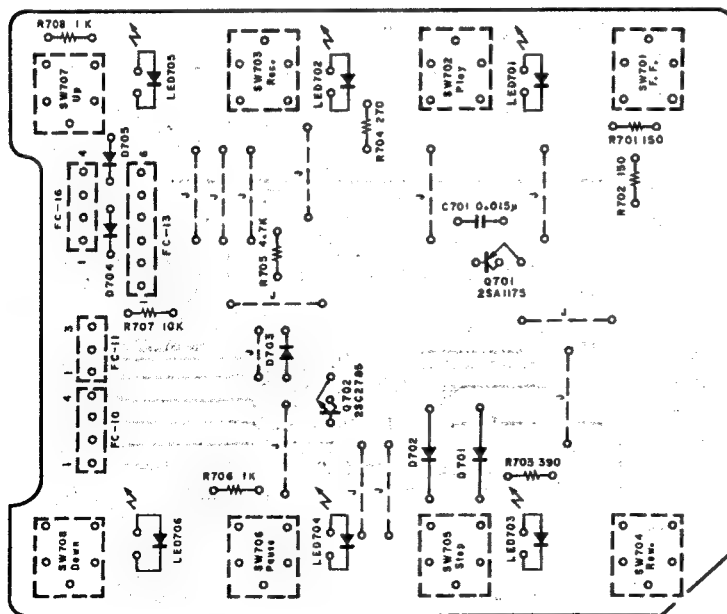


Fig. 6.3

| Schematic Ref. No. | Part No. | Description |
|--|----------|---|
| SW1 M2 M2 | BA04823A | Power Switch P.C.B. Ass'y (BX-100 (U.S.A. & Canada) |
| | BA04824A | Power Switch P.C.B. Ass'y (BX-100 (Australia & Others) & BX-100E) |
| | OB02573D | Power Switch P.C.B. |
| | OB70002A | Power Switch |
| | OB08342A | Spark Killer (BX-100 (U.S.A. & Canada)) |
| | OB08955A | Spark Killer (BX-100 (Australia & Others) & BX-100E) |
| | OE00752A | Eyelet 2x3 (2) |
| | OB08359A | Spark Killer Cover (BX-100 (Australia & Others) & BX-100E) |
| | OJ04763A | Power Switch Holder (1) |
| | OE00612A | M3x6 Pan (2A) (2) |
| Q601 Q602 R601,603 R602 | CA80011A | Shut-off P.C.B. Ass'y |
| | OC80047A | Shut-off P.C.B. |
| | OB06388A | TR 2SC2812 |
| | OB06389A | Photo Reflector NJL5141 |
| Q701 Q702 LED701 703,704 LED702 705,706 D701,702 D703,704 705 R701,702 R703 R704 R705 R706,708 R707 C701 SW701-708 | OB09840A | RK 680 Leadless |
| | OB09841A | RK 18K Leadless |
| | BA05077A | Control Switch P.C.B. Ass'y |
| | OB60036B | Control Switch P.C.B. |
| | OB06455A | TR 2SA1175 |
| | OB06456A | TR 2SC2785 |
| | OB06334A | LED TLG124A |
| | OB06333A | GRN LED TLR124A |
| | OB06181A | RED LED |
| | OB06398A | SiD 1SS53 |
| | OB06398A | SiD 1SS176 |
| | OB09657A | RK 150 1/6W J |
| R709 SW601 | OB09667A | RK 390 1/6W J |
| | OB09663A | RK 270 1/6W J |
| | OB09693A | RK 4.7K 1/6W J |
| | OB09677A | RK 1K 1/6W J |
| | OB09701A | RK 10K 1/6W J |
| | OB05557A | CM 0.015μ 50V J |
| | OB70004A | Touch Switch 4.3mm |
| | OJ04744A | LED Reflector (6) |
| | BA05078A | Timer Switch P.C.B. Ass'y |
| | OB60037B | Timer Switch P.C.B. |
| | OB09687A | RK 2.7K 1/6W J |
| | OB07437A | Slide Switch 2-3 |
| | OB81011A | Dip Mate 4P (1) |

Diagram of the back of the TV-30 chassis showing component locations. The diagram includes labels for ICs 800037, 95601, 70077K, and F.C. 9. It also shows a volume control knob and a connection point labeled "from Volume P.C.B. TV-30".

to Timer Switch P.C.B.
VT-30

5000µF C1
5000µF C2

B60034

VR10 100K(A)

R101 220K
R201 220K
R301 100K
R401 100K
R501 100K

C101 100P
C201 50P
C301 100P
C401 100P
C501 100P

P1 100K

FC-17
FC-20
FC-21

0 10 20 30

| Schematic Ref. No. | Part No. | Description | Schematic Ref. No. | Part No. | Description |
|---|--|--|---|--|---|
| VR110,210 LED301 R101,201 C101,201 SW601,602 Cds301 | BA05075A | Volume P.C.B. Ass'y | IC301 IC701 Q701 ZD701,702 D301,302 D701,702 703,704 R301-310 R311 R312 R313 R314 R701,702 705,709 710,715 R703 R704 R706,707 R708 R711 R712 R713 R714 C312 C701 C702 FC18,19 | BA05074A | Indicator P.C.B. Ass'y |
| | OB60034B OB31002A | Volume P.C.B. Slide Volume 100K (A) | | OB60033B OB06369A OB11031A OB06013A OB06191A OB06181A OB06398A | Indicator P.C.B. IC TA7612AP IC TL092 TR 2SA733 (P,Q) ZD 2.7V RD2.7E SID 1SS53 SID 1SS176 |
| | OB06333A OB09733A OB09282A OB07462A OB06325B | LED TLR124A RED RK 220K 1/6W J CC 100P 50V K Push Switch Photocoupler MCD7214F | | OB09681A OB01857A OB01888A OB09797A OB01887A OB09725A | RK 1.5K 1/6W J RK 1K 1/4W J RK 10K 1/4W J RK 120 1/4W J RK 5.6K 1/4W J RK 100K 1/6W J |
| | OB81002A OB81011A OB81012A | Dip Mate 2P (1) Dip Mate 4P (2) Dip Mate 5P (1) | | | |
| | BA05076A | Dolby NR Switch P.C.B. Ass'y | | OB09717A OB09713A OB09737A OB09749A OB09677A OB09709A OB09685A OB09701A OB09281A OB09868A OB09163A OB02356A | RK 47K 1/6W J RK 33K 1/6W J RK 330K 1/6W J RK 1M 1/6W J RK 1K 1/6W J RK 22K 1/6W J RK 2.2K 1/6W J RK 10K 1/6W J CC 150P 50V K CF 0.1μ 50V J CE 10μ 16V (BP) JP Connector 12P (1) |
| | OB60035B | Dolby NR Switch P.C.B. | | | |
| | OB09677A OB70008A OB81012A OJ04768A | RK 1K 1/6W J Push Switch Dip Mate 5P (1) Earth Plate A (1) | | OB81011A OB81012A | Dip Mate 4P (2) Dip Mate 5P (1) |
| | BA05073A | Tape Switch P.C.B. Ass'y | | | |
| | OB60032B OB60332A OB06688C OB32010A | Tape Switch P.C.B. TR 2SB564M Bias Osc. Unit Semi-fixed VR 47K | | | |
| | OB32009A OB09653A OB09695A | Semi-fixed VR 22K RK 100 1/6W J RK 5.6K 1/6W J | | | |
| Q301 T301 VR105,107 205,207 VR106,206 R138,238 R139,239 301,302 303 R140,240 R192,292 R317 R318 R350 C118,218 C301,302 303 C304,305 C306 C307 C308 SW301-304 | OB09707A OB09705A OB09263A OB09831A OB09837A OB09283A OB05796A | RK 18K 1/6W J RK 15K 1/6W J RK 12K 1/4W J RF 22 1W J RF 10 1W J CC 220P 50V K CM 0.047μ 50V J | CE 1μ 50V (BP) CP 8200P 100V J CP 1500P 100V J CE 47μ 16V Push Switch (1) Dip Mate 3P (1) Dip Mate 4P (2) Dip Mate 5P (1) 2P-S Post (1) Earth Plate A (1) | | |
| | OB09187A OB09828A OB41229A OB01403A OB70005A OB81010A OB81011A OB81012A OB81051A OJ04768A | CE 1μ 50V (BP) CP 8200P 100V J CP 1500P 100V J CE 47μ 16V Push Switch (1) Dip Mate 3P (1) Dip Mate 4P (2) Dip Mate 5P (1) 2P-S Post (1) Earth Plate A (1) | | | |

6.9. Main P.C.B. Ass'y

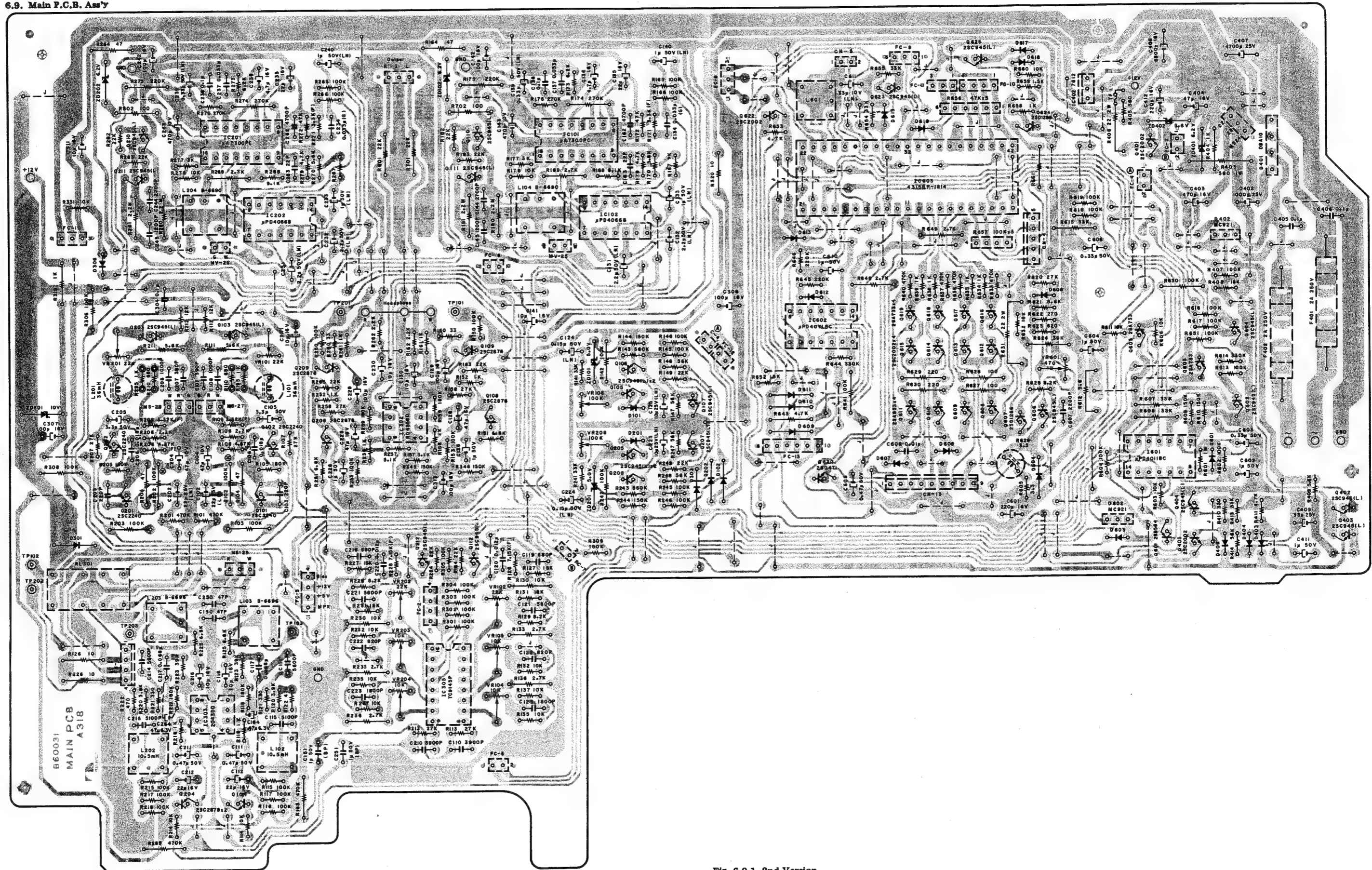


Fig. 6.9.1 2nd Version

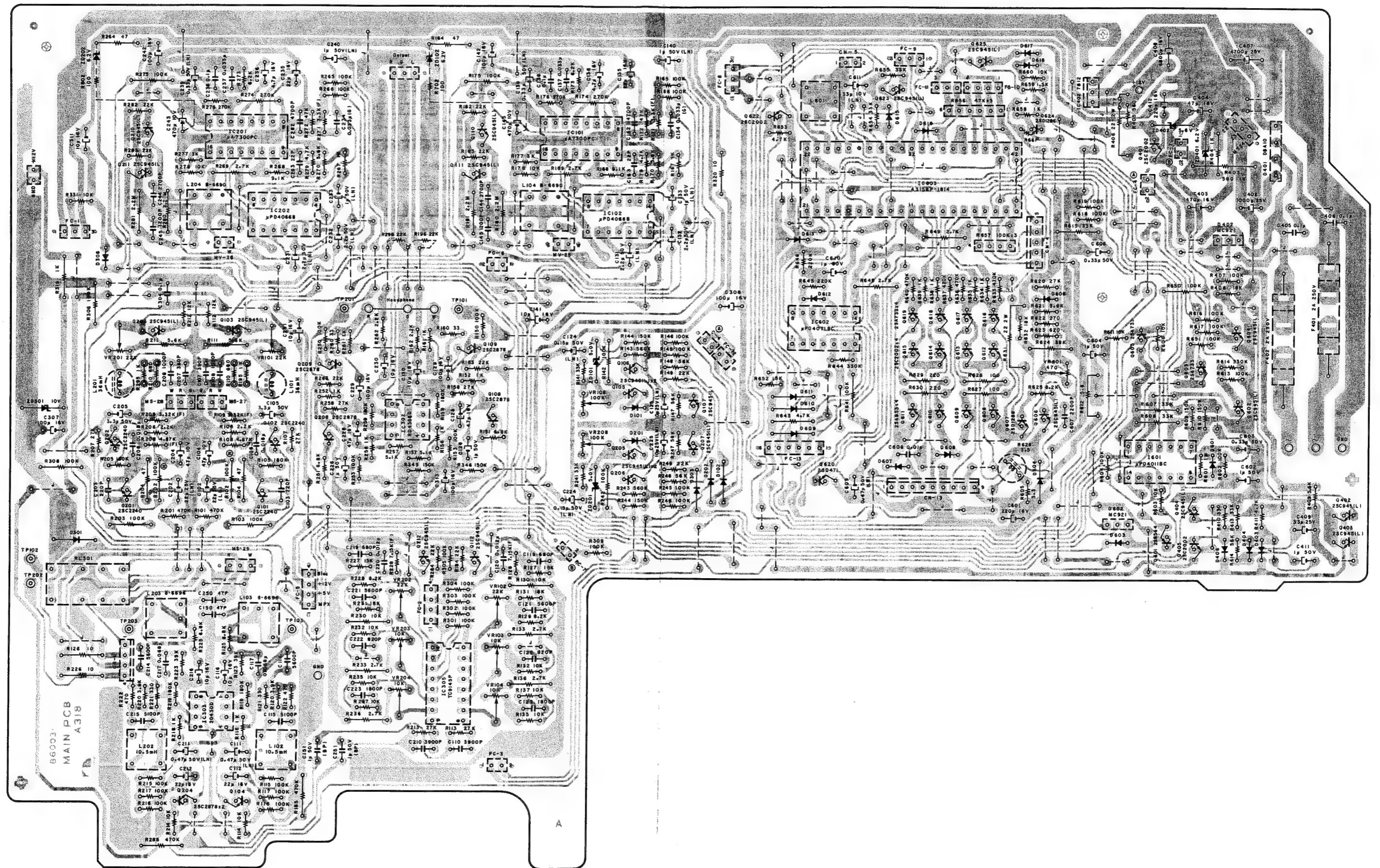


Fig. 6.9.2 1st Version

7. SCHEMATIC DIAGRAMS

7.1. Attention to Servicemen

(1) Caution

- If a part is in need of removing (or replacing) for service, it should be remounted (or replaced with specified parts) by the same methods as before after servicing.
- The appliance should be used only specified parts for preventing a risk of fire and electric shock and maintaining the characteristics.
- Before returning the repaired appliance to a customer, check to insure that the exposed part is accurately insulated from the Power Supply by measuring the leakage current or the insulation resistance between them.

(2) Parts Replacement

Following parts shall be replaced with the specified ones.
Refer to the parts list.

(a) Power Supply Circuit

Power Cord
Power Transformer: T1
Fuses: F401, 402

(b) Power Switch P.C.B. Ass'y

Power Switch: SW1
Spark Killer: M2

(c) Tape Switch P.C.B. Ass'y

Power Transistor: Q301
Fail Safe Type Resistor: R318, 350

(d) Main P.C.B. Ass'y

Regulator IC: IC402
Power Transistors: Q601, 607, 620, 624
Diode Bridge: D401
Fail Safe Type Resistors: R164, 264, 320, 403, 406, 612, 631
Thermal Fuse: TF1

7.2. IC Block Diagrams

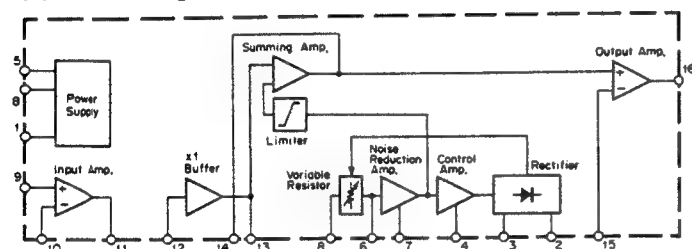


Fig. 7.2.1 Dolby NR IC $\mu A7300PC$

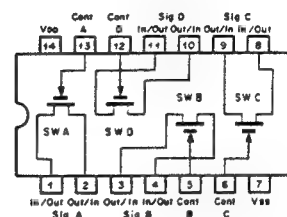


Fig. 7.2.5 Bilateral Switch C-MOS IC $\mu PD4066BC$

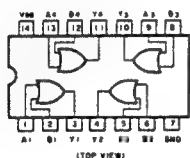


Fig. 7.2.2 OR Gate C-MOS IC $\mu PD4071BC$

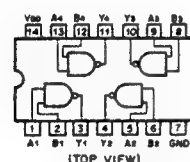


Fig. 7.2.3 NAND Gate C-MOS IC $\mu PD4011BC$

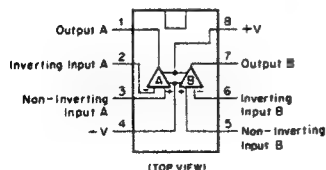


Fig. 7.2.4 Operational Amp. IC4556D, 2043DD, TL092

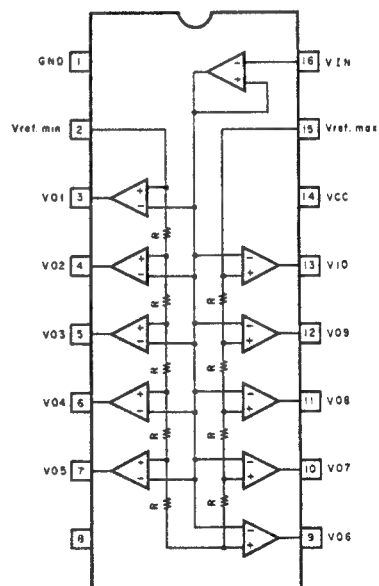


Fig. 7.2.6 Level Meter Driver TA7612AP

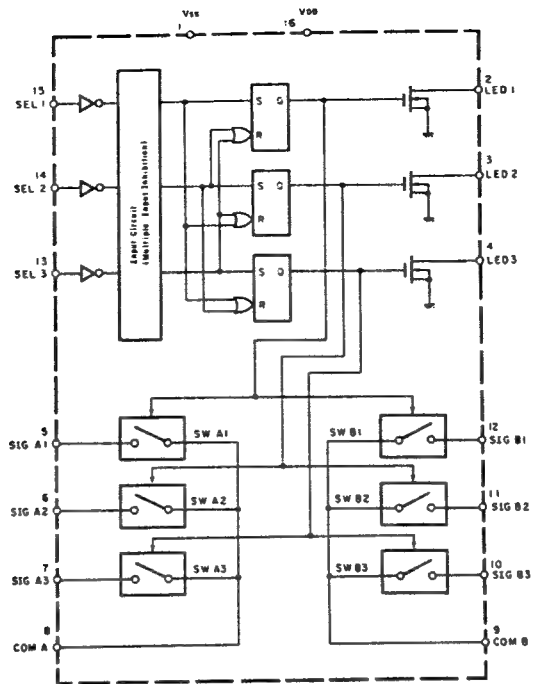


Fig. 7.2.7 Analog Switch Selector TC9145P

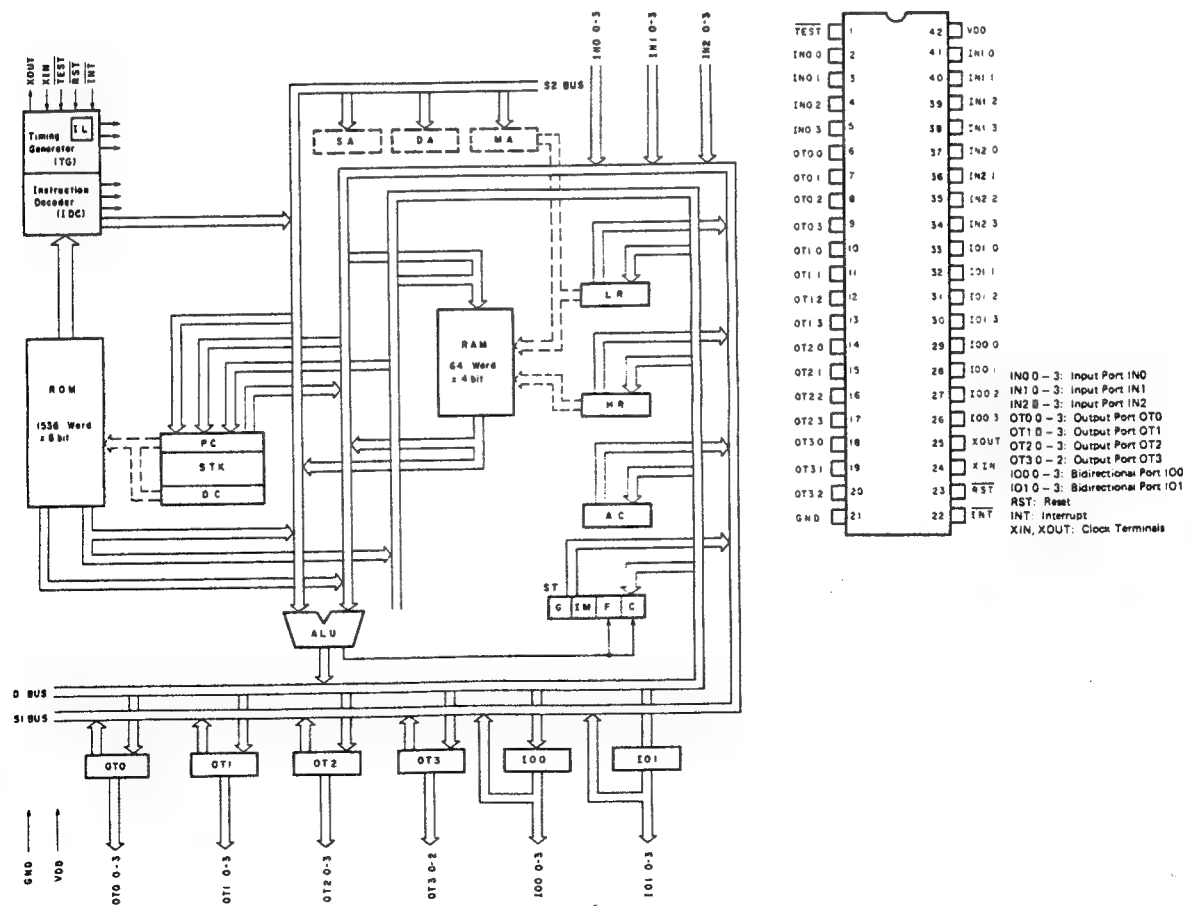


Fig. 7.2.8 4-Bit Micro-processor TMP4315BP-1814

7.3. Schematic Diagram

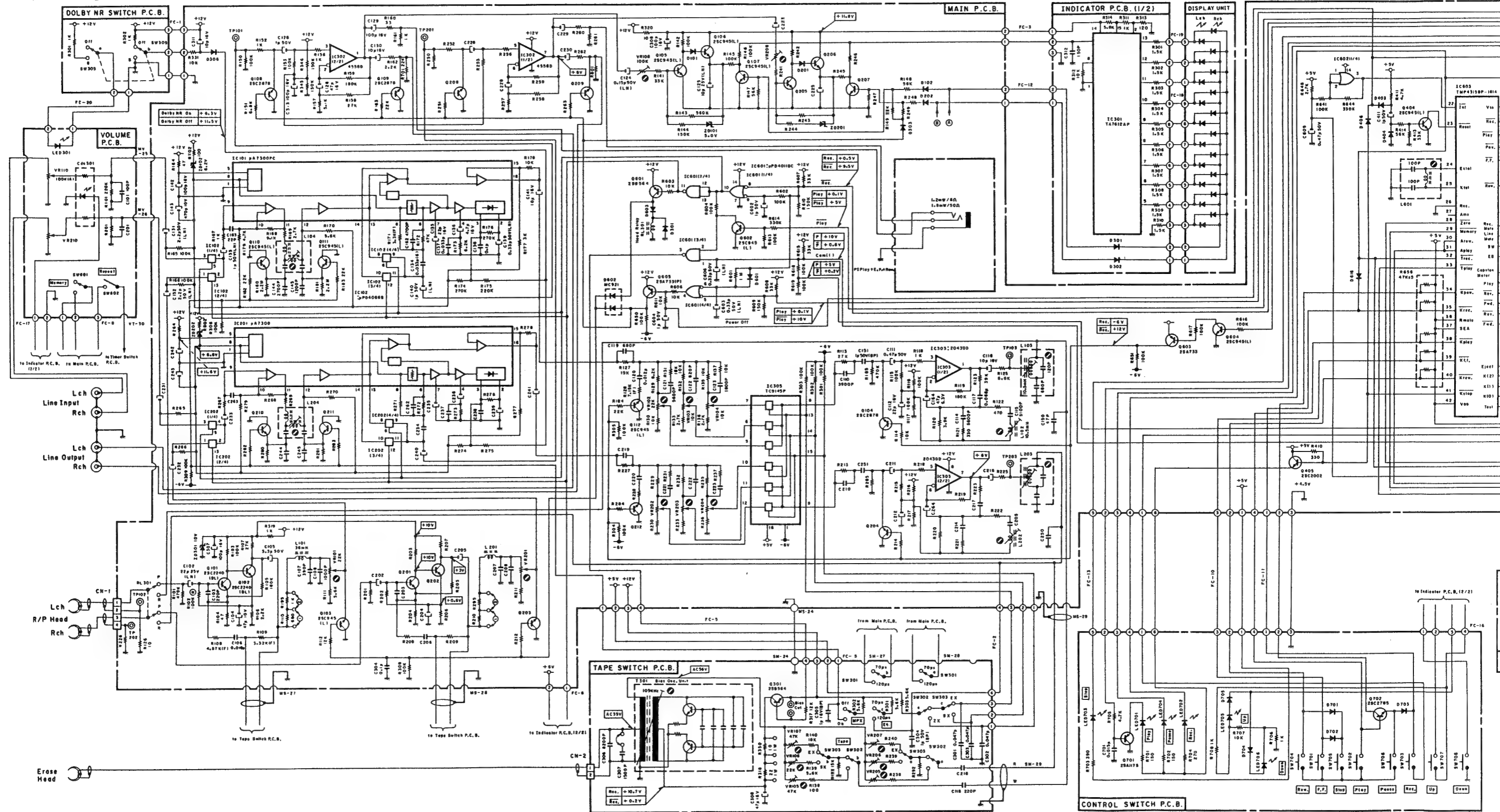
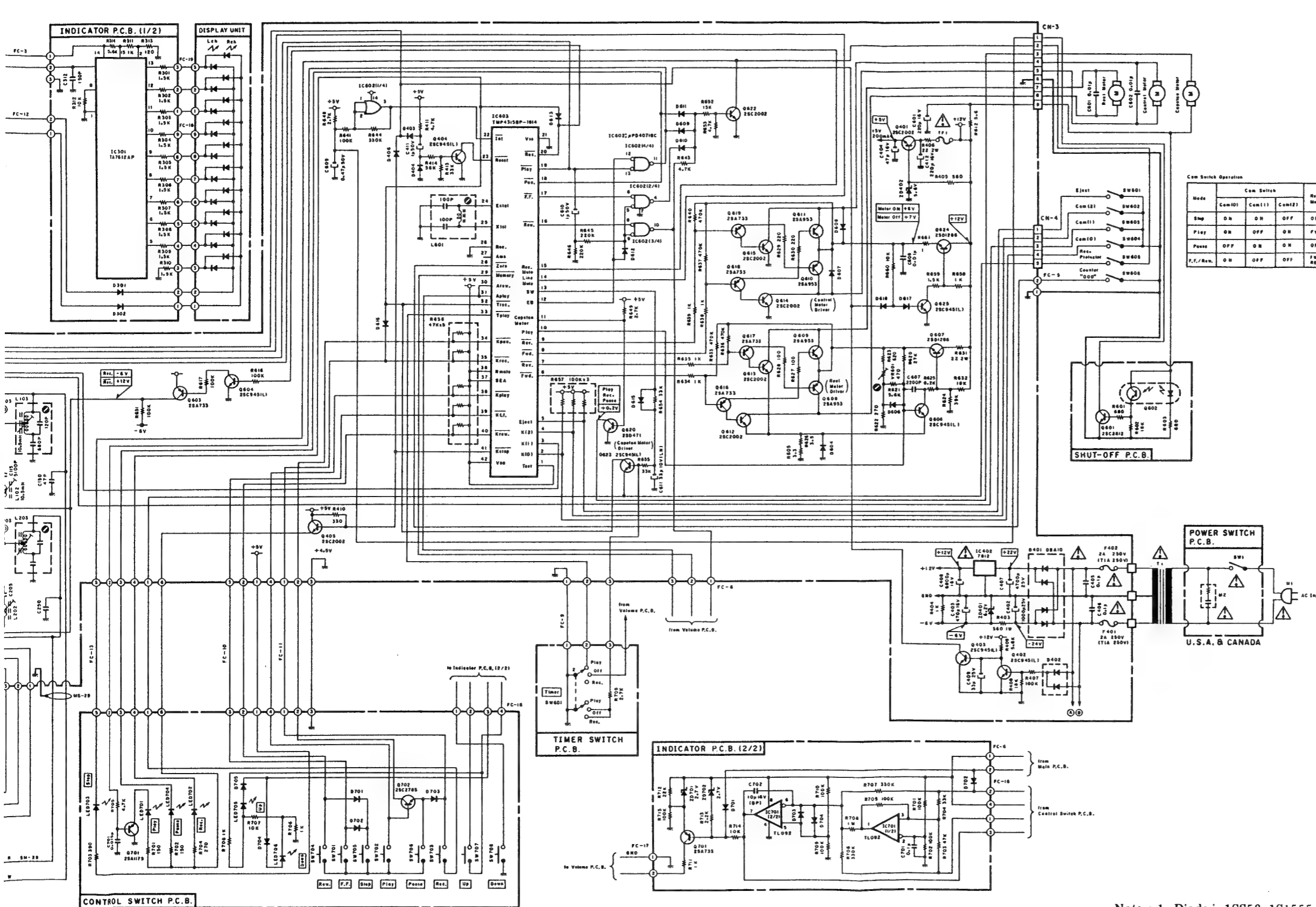
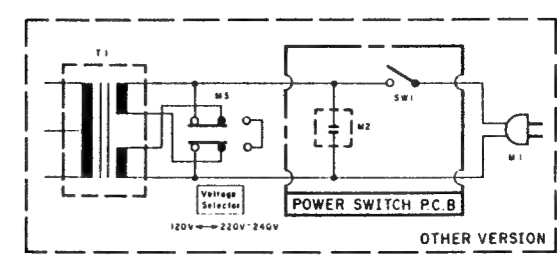
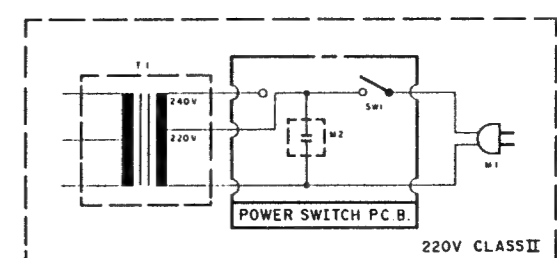
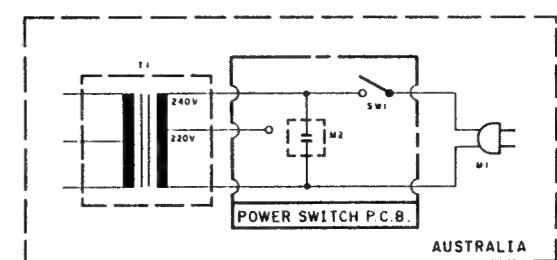
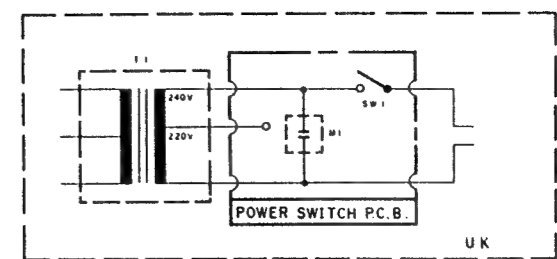


Fig. 7.3



Com Switch Operation

| Mode | Com101 | Com111 | Com121 | Rest Motor |
|-----------|--------|--------|--------|------------|
| Stop | ON | ON | OFF | OFF |
| Play | ON | OFF | ON | FW |
| Pause | OFF | ON | ON | OFF |
| F.F./Rev. | ON | OFF | OFF | REV |



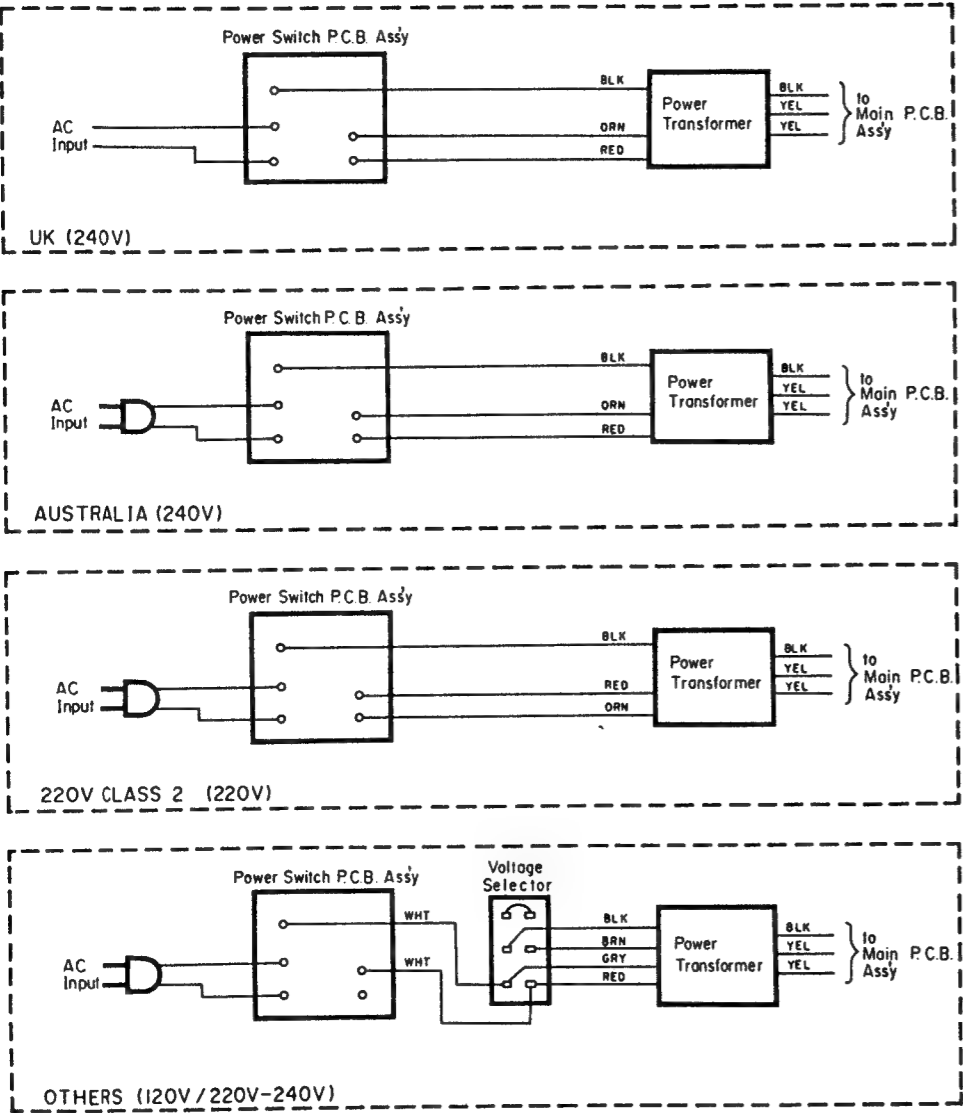
WARNING:
Parts marked with the symbol have critical characteristics. Use **ONLY** replacement parts recommended by the manufacturer. It is recommended that the unit be operated from a suitable DC supply or batteries during initial check-out procedures.

CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamp, or if the resistance from chassis to either side of the power cord is less than 240 k ohms, the unit is defective. **WARNING — DO NOT** return the unit to the customer until the problem is located and corrected.

- Notes: 1. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.
2. Resistor and capacitor marked with * show typical value.
3. 2SA733, 2SA608SP, 2SA1048 and 2SA1175 are interchangeable with each other.
4. 2SC945, 2SC536SP, 2SC2458 and 2SC2785 are interchangeable with each other.

Fig. 7.3

8. WIRING DIAGRAM



- Notes: 1. Table of wire colors
- | | |
|--------------|--------------|
| BRN — Brown | BLU — Blue |
| RED — Red | VIO — Violet |
| ORN — Orange | GRY — Gray |
| YEL — Yellow | WHT — White |
| GRN — Green | BLK — Black |
2. Component side view of the P.C.B. is illustrated unless otherwise specified.

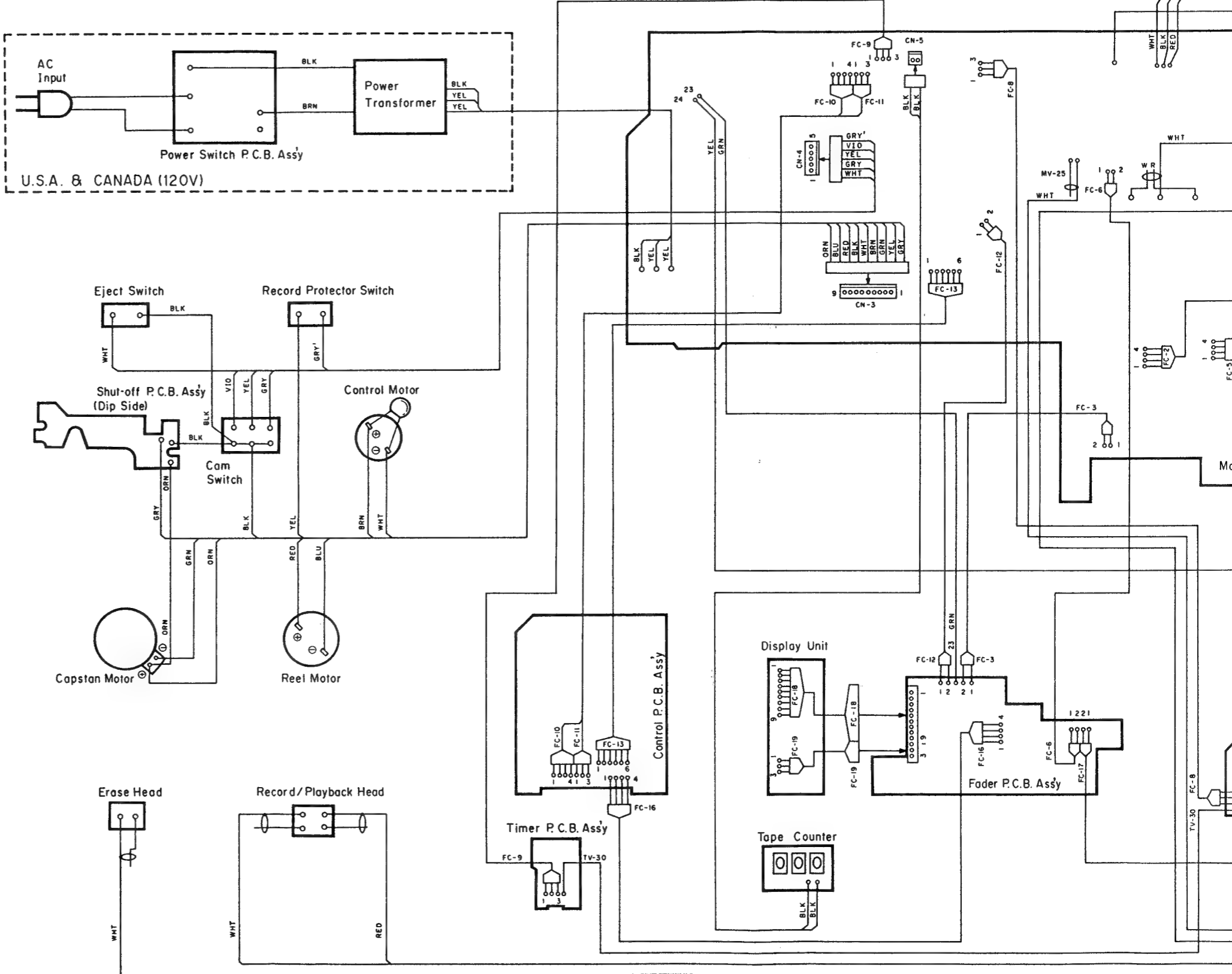


Fig. 8

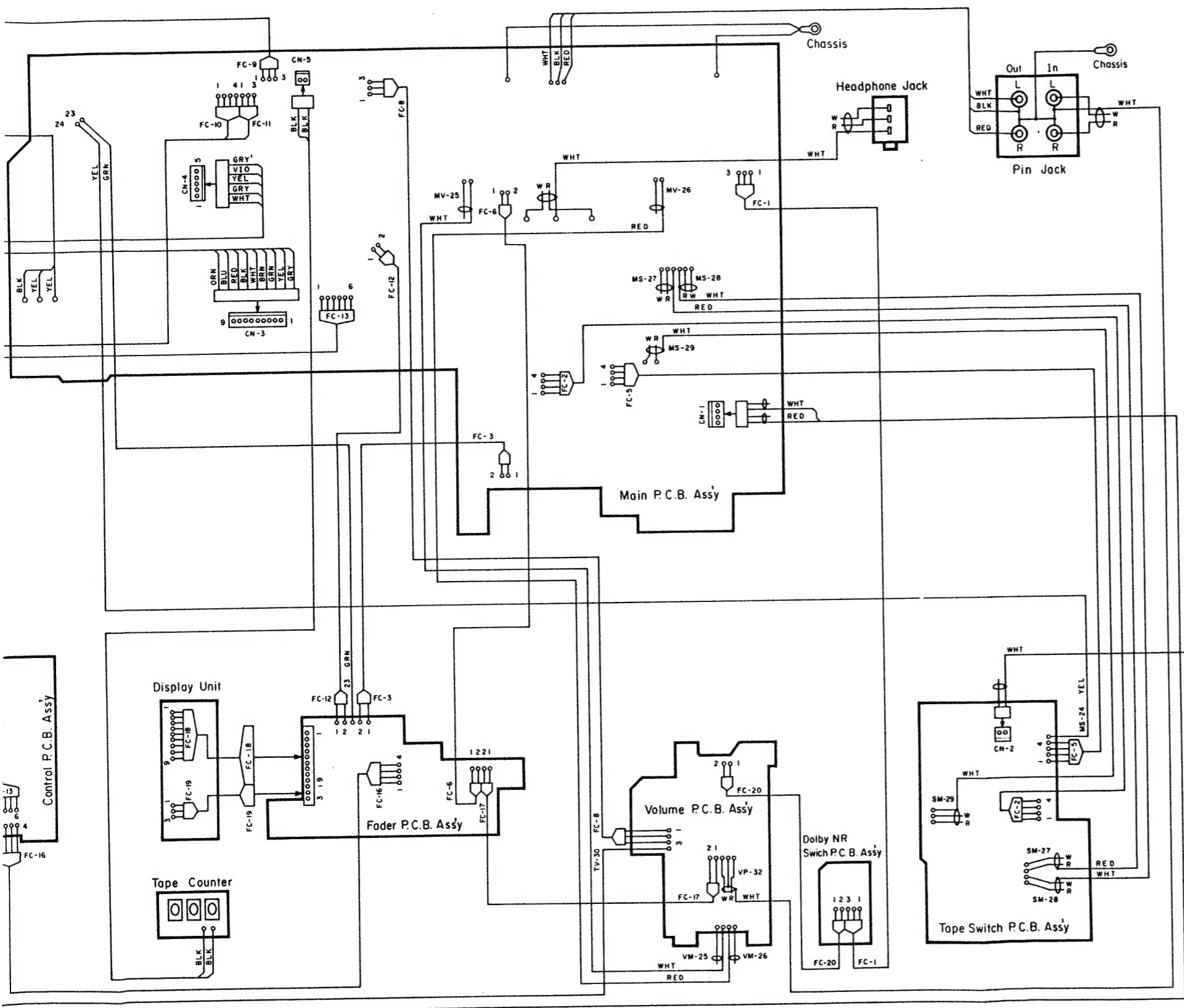


Fig. 8

9. BLOCK DIAGRAMS

9.1. Amplifier Section

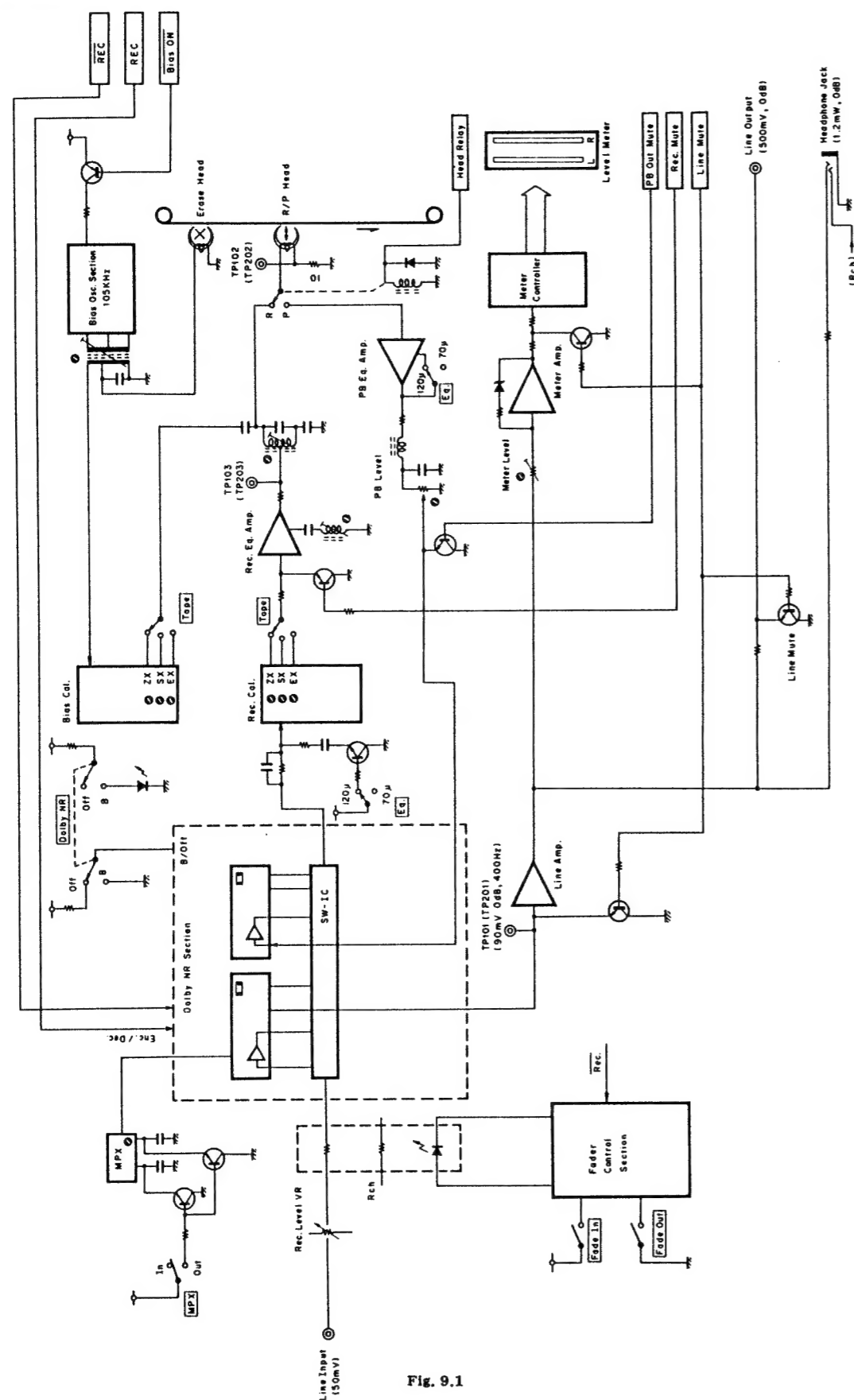


Fig. 9.1

9.2. Mechanism Control Section

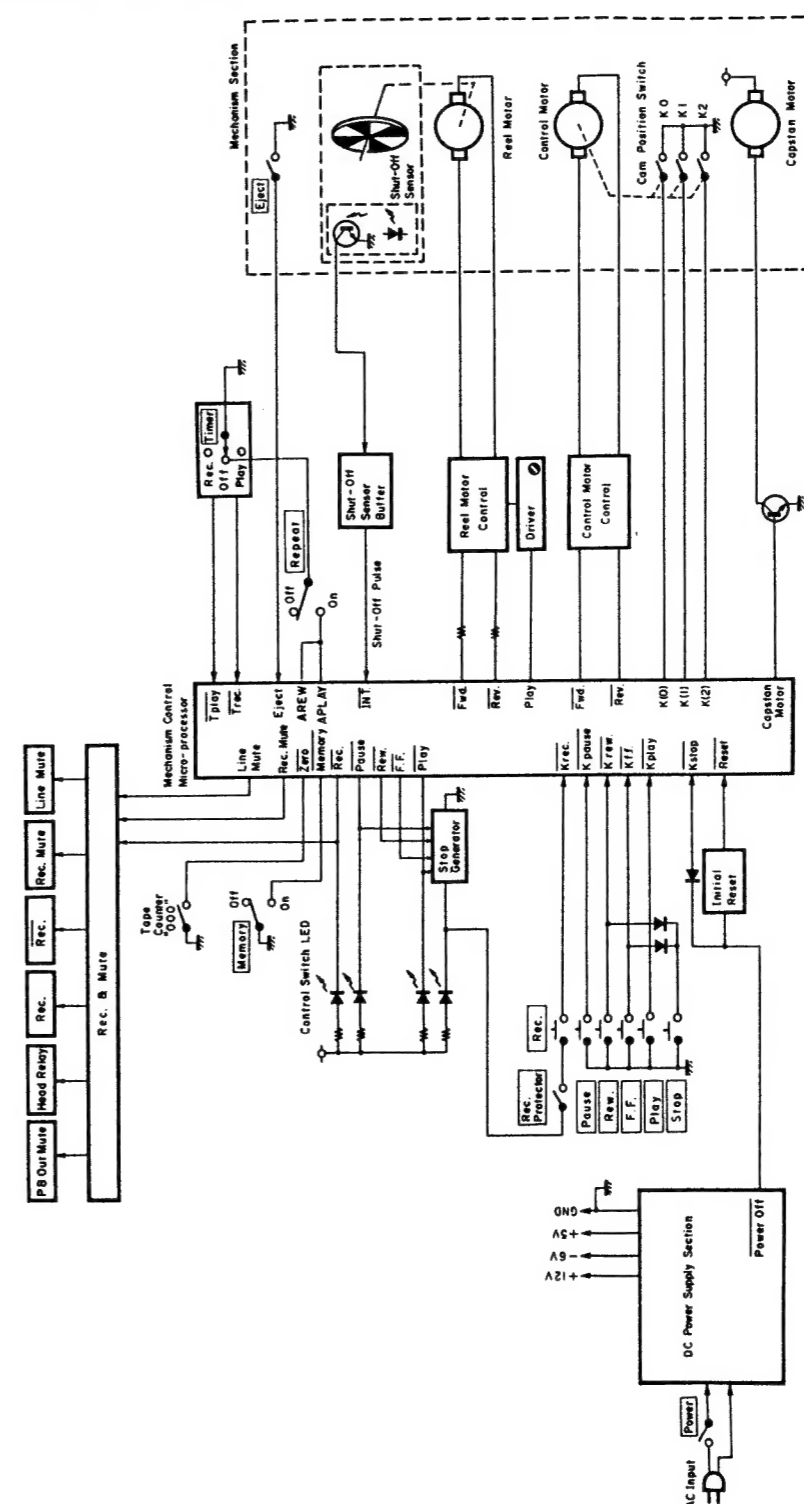


Fig. 9.2

10. TIMING CHART AND EQ. AMP. FREQUENCY RESPONSE

10.1. Timing Chart
(1) Overall Timing Chart

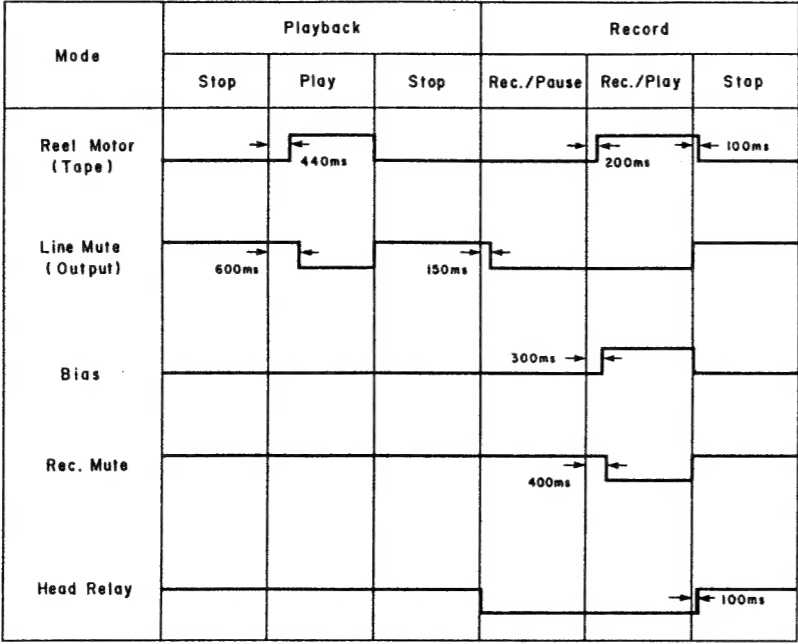


Fig. 10.1.1

(2) Mechanism Control Timing Chart

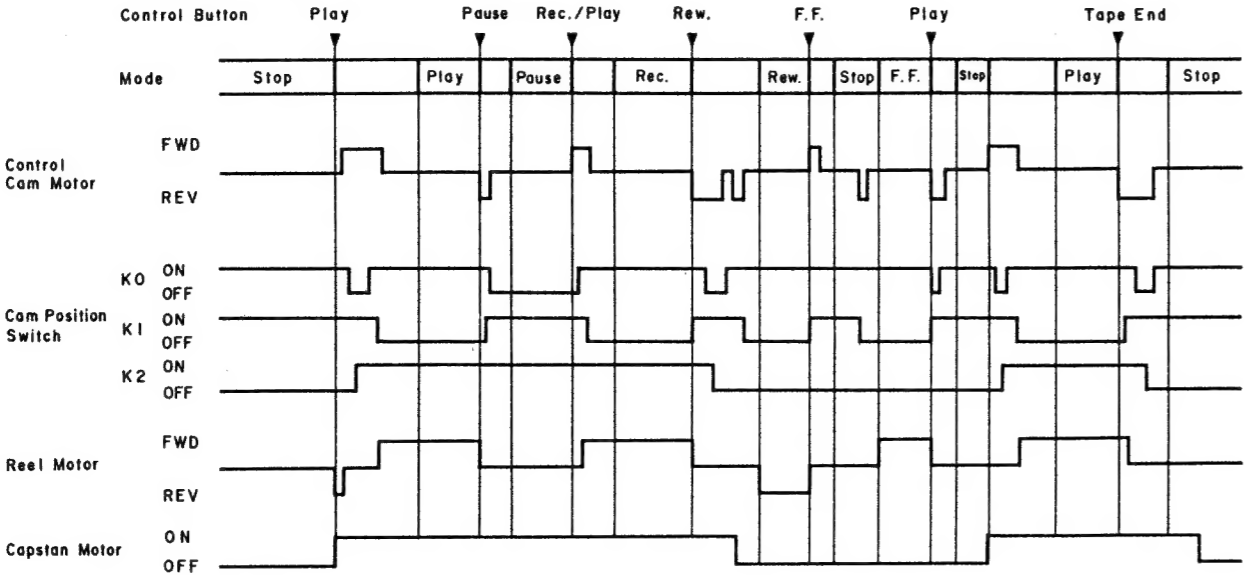


Fig. 10.1.2

10.2. Eq. Amp. Frequency Response
(1) Playback Frequency Response

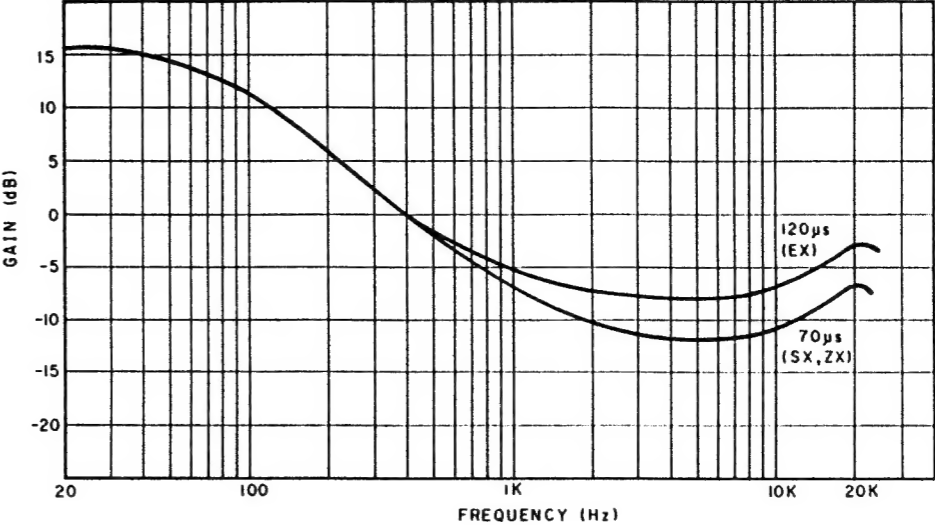


Fig. 10.2.1

(2) Record Current Frequency Response

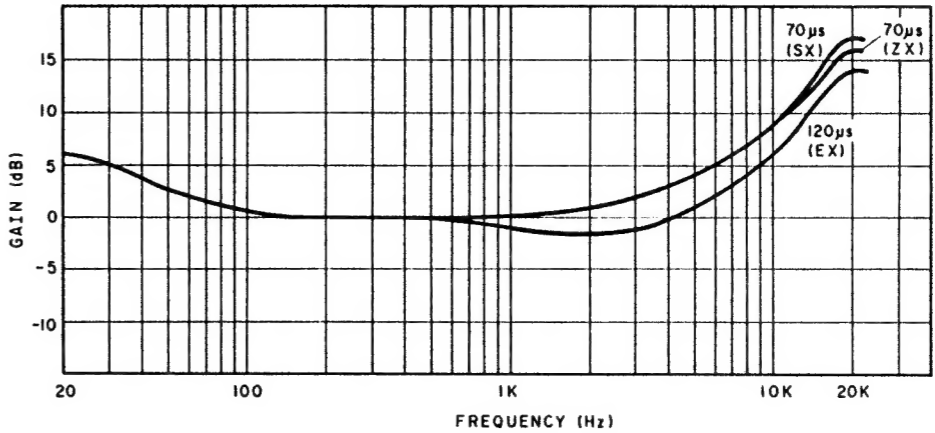


Fig. 10.2.2

11. SPECIFICATIONS

| | |
|-------------------------------------|---|
| Track Configuration | 4 Tracks/2-Channel Stereo |
| Heads | 2 (Erase Head x 1, Record/Playback Head x 1) |
| Motors (Tape Transport) | DC Servo Motor (Capstan Drive) x 1 DC Motor (Reel Drive) x 1 |
| Power Source | 100, 120, 120/220-240, 220 or 240V AC; 50/60 Hz (According to country of sale) |
| Power Consumption | 23 W max. |
| Tape Speed | 1-7/8 ips. (4.8 cm/sec.) $\pm 0.5\%$ |
| Wow-and-Flutter | Less than 0.11% WTD Peak Less than 0.06% WTD RMS |
| Frequency Response | 20 Hz—20,000 Hz (recording level —20 dB) |
| Signal-to-Noise Ratio | Dolby B-Type NR on <70 μ s, ZX tape> Better than 62 dB (400 Hz, 3% THD, IHF A-WTD RMS) |
| Total Harmonic Distortion | Less than 1.0% (400 Hz, 0 dB, ZX, EXII tape) Less than 1.2% (400 Hz, 0 dB, SX tape) |
| Erase | Better than 60 dB (100 Hz, 0 dB) |
| Separation | Better than 36 dB (1 kHz, 0 dB) |
| Crosstalk | Better than 60 dB (1 kHz, 0 dB) |
| Bias Frequency | 105 kHz |
| Input (Line) | 50 mV, 30 k Ω |
| Output (Line) | 0.5 V (400 Hz, 0 dB) 2.2 k Ω |
| (Headphones) | 1.2 mW (400 Hz, 0 dB) 8 Ω load |
| Fast-Winding Time | Approx. 85 seconds (with C-60 cassette) |
| Dimensions | 430 (W) x 110 (H) x 250 (D) millimeters 16-15/16 (W) x 4-5/16 (H) x 9-7/8 (D) inches |
| Approximate Weight | 5.5 kg 12 lb. 2 oz |

- Specifications and appearance design are subject to change for further improvement without notice.
- Noise Reduction System manufactured under license from Dolby Laboratories Licensing Corporation.
- The word "DOLBY" and the Double-D-Symbol are trademarks of Dolby Laboratories Licensing Corporation.